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USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

Enhanced Preliminary
Assessment Report:

Pontiac Storage Activity
Pontiac, Michigan

March 1990

prepared for

Commander
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland 21010-5401

prepared by

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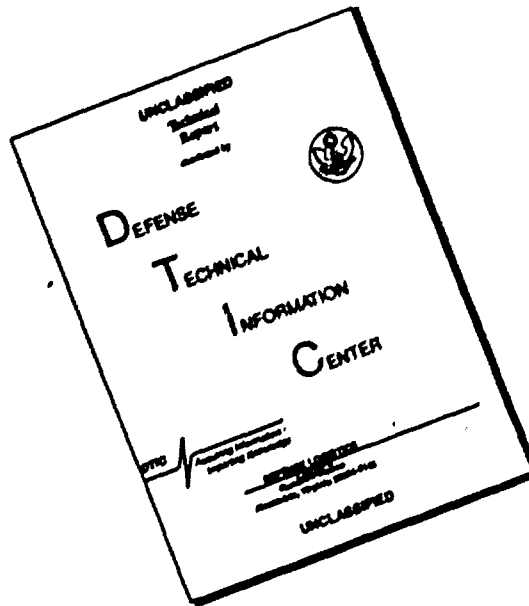
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<p>An Enhanced Preliminary Assessment (PA) was conducted at the Pontiac Storage Activity (PSA, also known as the Pontiac Storage Facility) in Pontiac, Michigan. The principal objective of the enhanced PA was to assess the PSA's present environmental status and the need for any further action required at the site prior to its potential excessing. The PSA consists of 3 buildings (the largest of which offers approximately 600,000 square feet of internal floor space) and a guard shack situated on 31 acres. Several environmentally significant operations (ESOs) were noted during the enhanced PA program. Of these, surface releases observed at the site near above ground heating oil and gasoline tanks will require immediate action to control/remove the existing threat and investigate the extent of the releases. Other ESOs include, but are not limited to, an underground heating oil tank, removed underground heating oil and septic system tanks, storage of PCB-containing equipment, electrical transformers, and past painting operations. (S)</p>				
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Pontiac Storage Facility
Enhanced Preliminary Assessment (PA)
Michigan Tank Automotive Command (TACOM)
Environmentally Significant Operations (ESO)
Environmental Receptors
Human Receptors

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ENHANCED PRELIMINARY ASSESSMENT REPORT

PONTIAC STORAGE ACTIVITY
Pontiac, Michigan

REPORT NO. CETHA-BC-CR-90037

Prepared For:

U. S. ARMY TOXIC AND HAZARDOUS MATERIAL AGENCY
Aberdeen, Maryland

Prepared By:

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March 1990

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EXECUTIVE SUMMARY

This report presents the results of the enhanced preliminary assessment (PA) conducted by E. C. Jordan Company at the United States government property known as Pontiac Storage Activity (also known as Pontiac Storage Facility) in Pontiac, Michigan. Preliminary assessments of federal facilities are being conducted to characterize the potential environmental impacts of actions occurring at these facilities and to provide a basis for establishing corrective actions to respond to releases of hazardous substances. The principal objective of this enhanced PA is to assess the PSA's present environmental status to determine the need for any further action. The enhanced PA involved examining site activities and pertinent environmental records/files, interviewing persons familiar with the PSA, and reviewing potential pathways by which contamination would affect public health and the environment both at the site and at neighboring properties. The findings discussed in this enhanced PA report will contribute to decisions regarding final closure and ultimate excessing of the PSA property.

The PSA is located in the southeastern portion of Michigan approximately 22 miles northwest of the Michigan Tank Automotive Command, and consists of 3 buildings and a guard shack situated on approximately 31 acres of land. The main facility offers 600,000 square feet of internal floor space and is used for the storage of machines used to produce tanks and ordnance.

Several environmentally significant operations (ESOs) were observed both at the PSA and at neighboring properties during the course of E. C. Jordan's performance of this enhanced preliminary assessment. The most significant ESOs, and E. C. Jordan's recommendations for correcting or further investigating them, are presented below.

- Surface releases near the aboveground heating oil and gasoline storage tanks and at the fill port of the heating oil underground storage tank were observed during the course of the enhanced PA. Immediate action is necessary on the part of PSA to a) investigate the extent of the observed releases, b) control/remove the existing threat, and c) prevent future releases from occurring through the use of secondary containment equipment or some other suitable means.
- Heating oil used for the main building's Section C maintenance area is stored in an underground 1,000-gallon fiberglass tank placed in service in 1978-1979. Though no information was collected during the assessment which would indicate that the tank had experienced a subsurface leak, a subsurface soil sampling and analysis program should be prepared and implemented to confirm that the tank has not experienced losses. This program could be combined with the surface soil sampling and analysis study recommended for the area. As an alternative to subsurface soil sampling, the PSA can consider tightness-testing the tank system for leaks using a method capable of detecting losses down to 0.10 gallons per hour.
- The PSA formerly used a 10,000 gallon UST to store heating oil to power its boilerhouse. This tank was located approximately 200 feet due north of the septic system and was removed from service in 1984. Though no information was observed during the enhanced PA which would indicate that

the tank experienced a release, potential undetected leaks or spills occurring during filling operations pose a threat to the PSA's environmental status.

To assess the potential environmental impact that the UST, as well as the septic system, had on the PSA, a subsurface soil sampling and analyses program should be prepared and implemented which focuses on the northwestern corner of the property.

- ° One hundred underground storage tanks (USTs) are located within a 1/2-mile radius of the PSA. These USTs represent a potential environmental risk to the PSA site because of their potential to develop leaks and release their contents to subsurface soils and groundwater. Through migration, such leaks could impact the PSA property.

Additional information on these tanks is needed to determine if they have impacted, or are impacting, the PSA's environmental status.

- ° Several potential asbestos sources were observed and include drop ceiling tiles and floor tiles in the office area, and insulated piping in both the boilerhouse and office areas of the main facility. A sampling program should be developed and implemented to determine which, if any, of these materials contain asbestos.
- ° Spray-painting was formerly conducted in the maintenance area of Section C of the main facility. A wipe sampling and analysis program should be prepared and implemented in this area to assess the impact, if any, of lead-containing paint overspray on the walls, floor, and rafters.
- ° Because known PCB-contaminated items have been stored at the PSA, a wipe sampling and analysis program should be developed and implemented to determine if the floor of the main facility has been impacted by PCBs. The program should focus on those areas of the PSA where PCB-containing equipment was stored or decontaminated.
- ° Until 1977, the PSA discharged wastewaters into a septic sewer system located in the northwest corner of the property due north of the office area. Through the late 1970s, it was a common practice on the part of septic system users to place relatively small quantities (generally less than 5 gallons) of cleaners containing benzene and chlorinated solvents into their systems to enhance sludge dissolution. The potential exists, therefore, for such cleaning materials to have been introduced into the PSA septic system.

1.0 INTRODUCTION

This document is a report of the enhanced preliminary assessment (PA) conducted by E.C. Jordan Company at the United States Army-owned property known as Pontiac Storage Activity (PSA) (also known as Pontiac Storage Facility) in Pontiac, Michigan.

1.1 AUTHORITY FOR THE PA

The work performed by E.C. Jordan under this enhanced PA project was conducted in accordance with Task Order 10 of Contract No. DAAA15-88-D-0006 between E.C. Jordan and the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA). The enhanced PA of the PSA is being conducted to characterize the environmental impact of actions occurring, or which have occurred, at the property. The findings of this enhanced PA will contribute to decisions regarding the final closure and ultimate excessing of PSA.

1.2 OBJECTIVES

Specifically, the objectives of this enhanced PA are to

- Identify and characterize the environmentally significant operations (ESOs);
- Identify property areas or ESOs that may require a site investigation;
- Identify ESOs or areas of environmental contamination that may require immediate remediation;
- Identify areas for which no further action is needed; and
- Identify possible impacts to the property from surrounding activities and land uses.

Although this enhanced PA effort does not extend to the generation of new data, it identifies those areas where existing data are incomplete, unreliable, or ambiguous and recommends ways to address such shortcomings.

1.3 PROCEDURES

This enhanced PA report is based on existing information maintained both at the PSA and at the Warren, Michigan Tank Automotive Command (TACOM) facility which were made available to E.C. Jordan through USATHAMA, and other sources. Records and/or files used/reviewed during the course of this enhanced PA include, but are not limited to, the following:

- Aerial photographs of the site area maintained by the Oakland County Planning Commission and the Detroit Edison Company (the local utility). The environmental files for the site maintained by the Michigan Department of Natural Resource's Air Quality, Emergency Response, Waste Management, and Surface Water Quality Divisions.
- Underground storage tank registration forms held by the Michigan State Police Office of Underground Storage Tanks.
- USATHAMA's Installation Assessment Report (dated August, 1980)¹ and the

update of that Installation Assessment Report (dated March, 1988)².

- ° PSA construction blueprints held by the TACOM facility in Warren, Michigan.

In addition to the review of these files, the enhanced PA involved a site visit by E.C. Jordan personnel for the purpose of obtaining additional information through direct observation of the site and interviews with appropriate personnel familiar with the site's operation and history. The site visit was conducted by E.C. Jordan personnel on October 31 and November 1, 1989. The enhanced PA also included a visit to the TACOM facility by E.C. Jordan personnel on October 30, 1989, for the purposes of gathering filed information held by TACOM on the PSA and to interview TACOM and other U.S. Army personnel familiar with the environmental matters of PSA.

During the course of gathering information for this report, E.C. Jordan also interviewed the following persons not associated with the U.S. Army:

Terry Harmon, Manager, Michigan State Police UST Program
Sandy Meyers, Clerk, Pontiac Fire Marshal's UST office
Larry Mitchell, Clerk, Oakland County Register of Deeds
Ermema Constantine, Receptionist, MDNR's Air Quality Division
Bernice Sanford, Receptionist, MDNR's Waste Management Division
Harry Jones, Student Assistant, MDNR's Environmental Response Division
Anthony Igwe, Engineer, MDNR's Surface Water Quality Division

1.4 REPORT FORMAT

This enhanced PA report presents a summary and evaluation of environmental data relevant to the PSA and its excessing procedures. Section 2 describes the property and its surrounding environment and land uses. Section 3 identifies and characterizes the ESOs at the site. Section 4 discusses known and suspected releases to the environment, and Section 5 discusses potential human and environmental receptors of any such releases. Section 6 summarizes the findings and conclusions, identifies areas requiring further action, and, as appropriate, suggests how such actions can be accomplished. Section 7 lists pertinent materials reviewed.

2.0 PROPERTY CHARACTERIZATION

2.1 GENERAL PROPERTY INFORMATION

Based on information provided in the USATHAMA report entitled "Update of the Initial Assessment of the Pontiac Storage Facility, Michigan (dated March, 1988)," the PSA site is located approximately 22 miles northwest of the U.S. Army Tank Automotive Command (TACOM) in Warren, Michigan. The approximate location of the PSA with respect to the City of Pontiac is shown in Figure 1. A plan view of the PSA is presented as Figure 2.

The PSA site consists of 3 buildings and a guard shack situated on 31 acres in the southeastern corner of Pontiac, Michigan in Oakland County. The main facility covers 14 acres and offers approximately 600,000 square feet of internal storage space. This main facility was constructed between May 1955 and June 1956 and consists of seven sections (labeled as Sections A through G in Figure 2) separated by firewalls. This warehouse structure is a single-story, steel-frame building with corrugated steel walls and a concrete floor. Except for the facility offices in the northernmost area of Section E and the maintenance area in Section C, the main building is not heated. However, the storage spaces at the site are equipped with several dehumidifiers.

Heat is supplied to Sections C and E of the main building by furnaces which operate on heating oil. The heating oil used for Section C is stored in a 1,000-gallon capacity fiberglass underground storage tank, while the heating oil for Section E is stored in an aboveground, outdoor, 1000-gallon capacity steel tank.

A small shack constructed of concrete blocks and offering approximately 100 square feet of internal floor space is located on the west northwestern corner of the site due west of the main facility's administrative offices. This building formerly housed one of the facility's two groundwater wells. The building is unheated and currently empty.

The third site building is a boilerhouse located in the northwest corner of the property. This building offers approximately 200 square feet of internal floor space and formerly housed the second of the facility's groundwater wells and a boiler. The boiler was used to heat water stored in the PSA's 500,000 gallon water tower. The boilerhouse is of brick and concrete construction. It is not currently heated. Heating oil used to fuel the boiler was stored in a 10,000 gallon capacity underground storage tank constructed of steel. This tank was removed in 1984.

Potable water is currently piped to the site by the City of Pontiac. Until approximately 1985, potable water and water stored in the water tower were supplied by the two water-supply wells and associated systems located in the pumphouse and boilerhouse, respectively. According to information provided by TACOM, the pumps were removed from both wells and the well casings plugged with concrete grout in accordance with Michigan regulations. No records on the closure of these wells were available through the Oakland County Health Department (OCHD), the agency responsible for overseeing well closures. The OCHD indicated, however, that it is not uncommon for them to not have records on wells which were properly closed, especially private drinking water wells.

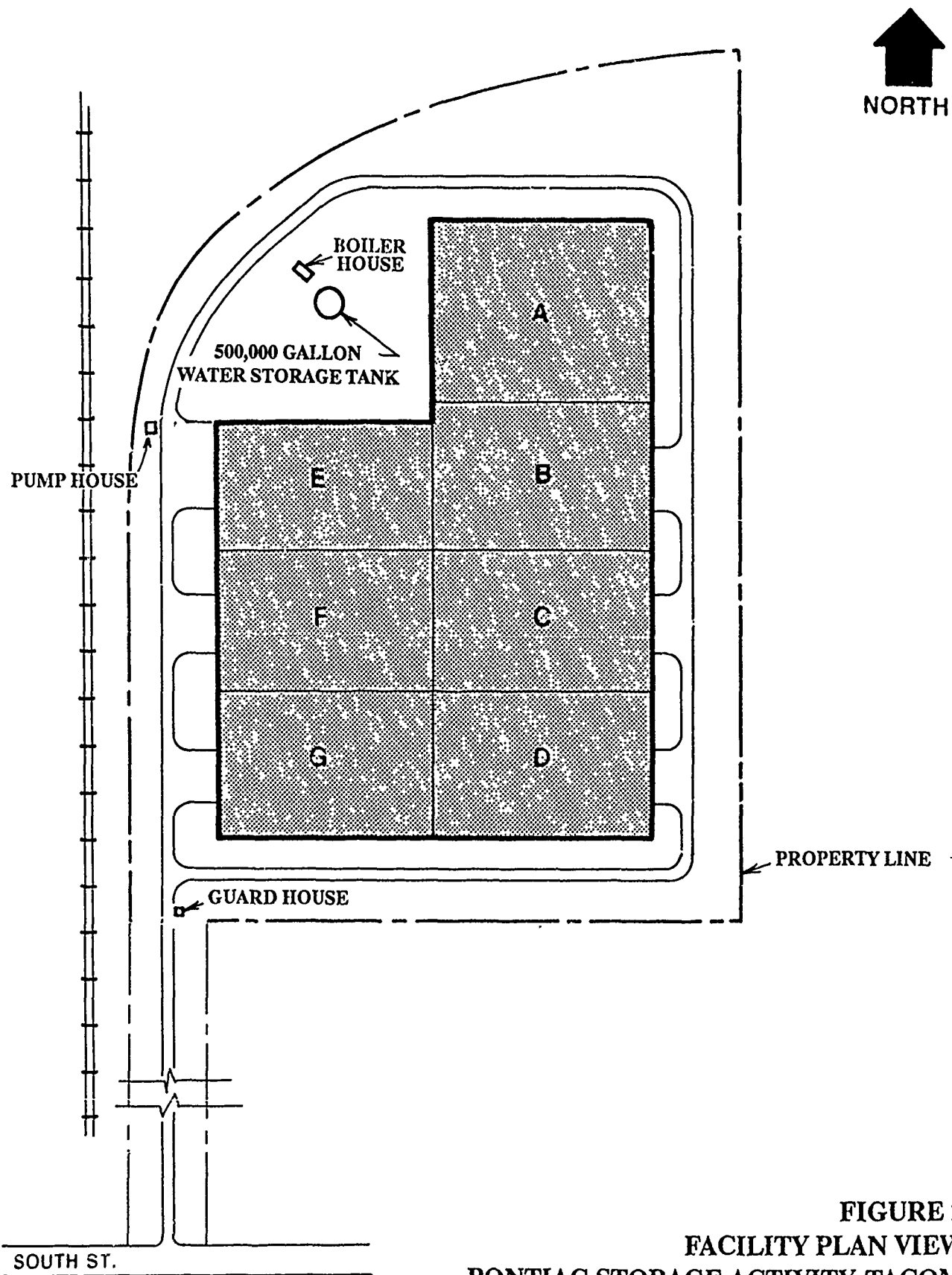


FIGURE 2
FACILITY PLAN VIEW
PONTIAC STORAGE ACTIVITY, TACOM
PONTIAC, MICHIGAN

2.2 PROPERTY HISTORY

As mentioned above, construction of the PSA facility began in May 1955 and was completed in June 1956. Upon its completion and until 1964, the PSA was a government-owned, contractor-operated (GOCO) site. Operating contractors during this period included General Motors Corporation, Truck and Coach Division (1956 through 1958); General Riggers and Erectors, Inc. (1959); Mark-Pack Michigan, Inc. (1960 through 1962), and Uni-Service Corporation (1963 and 1964). In 1964, the PSA became a government-owned, government-operated (GOGO) facility and was assigned to the U.S. Army Mobility Command (MOCOM). In 1967, the PSA was reassigned to TACOM. In 1984, PSA reverted to a GOCO facility. Serv-Air, Inc., a subsidiary of E-Systems, Inc., has operated at the facility since 1984.

Since its construction in 1956, the facility has been used predominantly for the storage of manufacturing machines used in the production of tanks and ordnance. In addition to storage, other operations conducted at the site included degreasing, painting, and general machine maintenance/cleaning. According to the PSA Site Supervisor, the degreasing and painting operations conducted by Serv-Air since 1984 are performed only on a limited, as-needed basis. Potentially hazardous materials used by Serv-Air in conducting these degreasing and painting operations include mineral spirits, petroleum-distillate solvents, solvent-based paints (some of which contain lead), and paint solvents including toluene and xylene.

As indicated by the PSA Site Supervisor, the majority of Serv-Air's painting and degreasing operations are conducted in the Section C maintenance area. Waste generated by the painting and degreasing operation include emptied paint cans (maximum capacity of 5 gallons), used paint filters, and used cotton rags (Serv-Air's degreasing operations involve wiping down equipment with diesel fuel-soaked cotton rags). These items, when generated, are disposed of with the PSA's general refuse. According to employees at the site, the site has not disposed of liquid wastes (such as paint and spent solvents) generated from the painting/degreasing operations since Serv-Air began as the site contractor.

Painting and degreasing operations which were conducted at the site prior to 1984 are discussed in the original Installation Assessment Report¹. As discussed in that report, the degreasing of machinery before Serv-Air involved spraying down equipment with a volatile solvent (consisting of 5 percent tetrachloroethylene, 25 percent dichloromethane, and 70 percent Stoddard solvent) and brushing solvent into those areas not sufficiently cleaned during spraying. Degreasing was conducted over large pans wherein the sprayed solvent was allowed to fall and evaporate. Following evaporation, residues (such as oil, grease, dirt, and paint chips) remaining in the drip pans were removed with rags and disposed of with the site's general refuse.

When painting was required before 1984, curtains were placed behind the unit being painted to collect/control paint overspray. When loaded with paint overspray, the curtains were removed from service and disposed of with the site's general refuse. It is not known if any liquid wastes were disposed prior to 1984.

In an effort to gather additional information on the use of the site prior to

1955, E.C. Jordan consulted with the Register of Deeds office for Oakland County. Based on information provided by that office, the subject site was owned by General Motors Corporation from 1946 until it was transferred to the U.S. Army Corps of Engineers in 1955. Before 1946, the site was owned by Fisher Company. The period of ownership by Fisher is not known. While under the ownership of both Fisher and General Motors Corporation, the site appears to have remained undeveloped based on E. C. Jordan's review of aerial photographs.

2.3 PERMITTING STATUS/REGULATORY REVIEW

In light of the limited operations currently conducted at the PSA and its apparent imminent closure, the acquisition of environmental permits does not appear to be a significant issue for this facility. Air permits for the discharge of volatile organics may have been needed at the site when painting/degreasing operations were conducted on a more regular basis. However, because these operations have been greatly reduced, air permits do not appear to be necessary at this time.

Based on the quantity of fuel oil and gasoline presently stored outdoors at the PSA, a Spill Prevention Control and Countermeasures (SPCC) Plan appears to be required for the site. The requirements of the SPCC Plan are further discussed in Section 3.3.

In October 1987, the PSA was inspected by the Oakland County Health Division (OCHD), acting as representatives of the Michigan Department of Natural Resources (MDNR). The inspection was conducted to evaluate the compliance status of the site with respect to Subtitle C of the Resource Conservation and Recovery Act (RCRA) of 1976, as amended; Michigan's Hazardous Waste Management Act, Act 64 of 1979, as amended; and Michigan's Liquid Industrial Waste Hauling Act, Act 136 of 1969, as amended. As discussed in a letter prepared by OCHD dated November 6, 1987, no areas of noncompliance were identified during the site inspection. Further, the PSA was identified as a non-generator of hazardous waste by the OCHD. A copy of OCHD's letter is provided in this report as Appendix A.

The files of MDNR's office in Northville, Michigan were reviewed to determine if that office was aware of any noncompliance issues or areas of environmental concern relating to the subject site and neighboring properties. The Northville MDNR office is responsible for maintaining the environmental files for all sites of concern located in Oakland County. The files of MDNR's Air Quality, Waste Management, Environmental Response, and Surface Water Quality Divisions were reviewed. No files on the subject facility are currently being held by these divisions.

E. C. Jordan also reviewed the National Priority List (NPL) of Uncontrolled Hazardous Waste sites and the State of Michigan's Act 307 list of potentially uncontrolled hazardous waste sites³. The subject facility was not identified on either list.

A Freedom of Information Act request was filed with the U.S. Environmental Protection Agency's office in Chicago, Illinois for a list of sites which that office has identified as either being a generator, treater, storer, or disposer (GTSD) of hazardous waste, or a potentially uncontrolled hazardous waste site

in the vicinity of the PSA. The request letter and the EPA's response is included in this report as Appendix B. The subject facility is not identified on either list provided by the EPA.

Though the subject facility was not identified on the Act 307 list, NPL, or EPA's lists of GTSDs and potential uncontrolled hazardous waste sites, one site, the GMC-Pontiac Central facility located southwest of PSA, was identified. A discussion of this listed neighboring site and the potential impact, if any, on the PSA is discussed in Section 2.4.2, Neighboring Properties.

2.4 SURROUNDING ENVIRONMENT AND LAND USE

2.4.1 Demographics and Land Use

The PSA is located in a mixed residential, commercial, and industrial sector of southeastern Pontiac, Michigan. The 1987 estimated population of Pontiac (based on figures gathered by the Oakland County Planning Commission) is 79,000. Pontiac's chief industry is automobile assembly.

2.4.2 Neighboring Properties

Properties neighboring the PSA are shown in Figure 3. As this figure shows, the PSA is bordered on the west and north by a railroad right-of-way. However, the rail spurs located west of the site are now abandoned. Residential properties are located beyond the abandoned railway to the west while an undeveloped wetland area and residential properties are located beyond the railroad line to the north. Packer Pontiac (an automobile dealership with a repair shop), F. W. Moore Electric (an electric parts service/warehouse center), and a City of Pontiac water storage yard border the PSA to the east. Commercial enterprises including K-Mart, a Mobil service station, and a Speedway gasoline station are also located to the east of PSA across Opdyke Road.

An open and undeveloped field, owned by General Motors Corporation (GMC), is located to the southeast of the subject site. A small creek crosses through this open field. Cleared open land also owned by GMC borders the PSA site to the south, and is used as a parking area for GMC employees. GMC's Truck & Bus Pontiac East Assembly facility is located south of PSA across South Boulevard. GMC's Pontiac Central Assembly facility is located southwest of PSA across South Boulevard.

Underground storage tanks are located at the Packer Pontiac, F. W. Moore, Clark, Speedway, Mobil, K-Mart, Pontiac Central, and Pontiac East properties. The tanks located at each site, their size, contents, age, and material of construction are presented in Table 1.

Due to the potential for these underground storage tanks to release contaminants to subsurface soils and groundwater through leaks or spills, the tanks listed in Table 1 represent a potential environmental risk to the PSA site. The level of risk which each tank poses, however, tends to be dependent upon the distance of the tanks from the PSA site, the type of material they contain, the area's groundwater flow patterns, the age of the tanks and the tanks' susceptibility to corrosion. Because of their distance from the PSA site, the tanks located at the General Motors facilities, Mobil, Speedway, and K-Mart would not be expected to significantly impact either the soil or groundwater conditions of

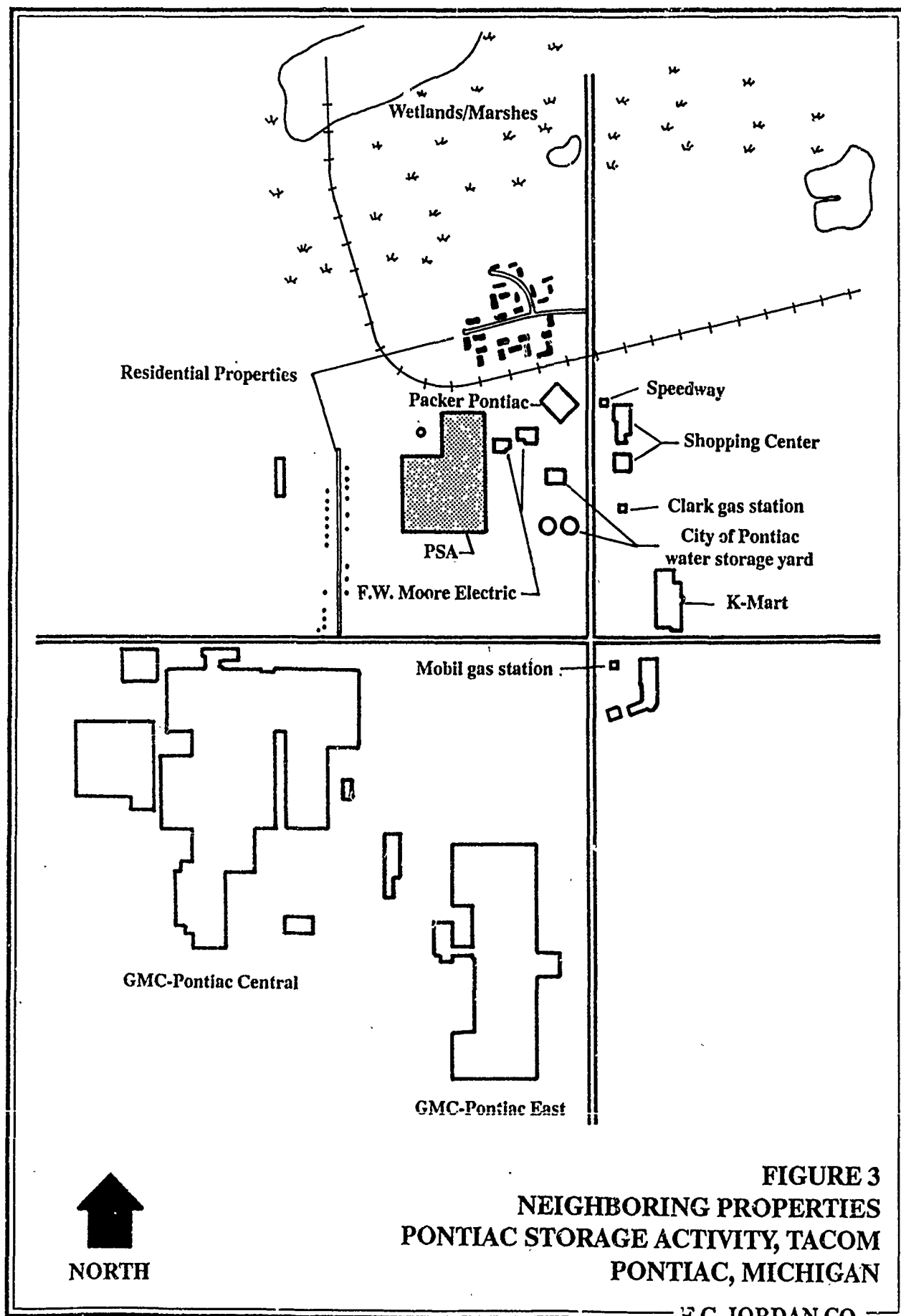


TABLE 1

UNDERGROUND STORAGE TANKS AT NEIGHBORING SITES
Pontiac Storage Activity

SITE	CAPACITY (Gallons)	AGE (Years)	MATERIAL OF CONSTRUCTION	CONTENTS
K-Mart, 975 S. Opdyke	1,000	15	Steel	Used Oil
Speedway, 601 Opdyke	8,000	10	Steel	Gasoline
Speedway, 601 Opdyke	8,000	10	Steel	Gasoline
Speedway, 601 Opdyke	8,000	10	Steel	Gasoline
GMC Pontiac East, 820 S. Opdyke	24,000	15	Steel	Gear Oil
GMC Pontiac East, 820 S. Opdyke	12,000	15	Steel	Power Steering Oil
GMC Pontiac East, 820 S. Opdyke	12,000	15	Steel	Engine Oil
GMC Pontiac East, 820 S. Opdyke	12,000	15	Steel	Glycol
GMC Pontiac East, 820 S. Opdyke	12,000	15	Steel	Hazardous Waste
GMC Pontiac East, 820 S. Opdyke	12,000	15	Steel	Diesel Fuel
GMC Pontiac East, 820 S. Opdyke	10,000	15	Steel	Gasoline
GMC Pontiac East, 820 S. Opdyke	12,000	15	Steel	Gasoline
GMC Pontiac East, 820 S. Opdyke	12,000	15	Steel	Gear Oil
GMC Pontiac East, 820 S. Opdyke	12,000	15	Steel	Transmission Oil
GMC Pontiac East, 820 S. Opdyke	1,500	1	Steel	Empty-Spill Tank
Clark, 747 Opdyke	5,000	20	Steel	Gasoline
Clark, 747 Opdyke	5,000	20	Steel	Gasoline
Clark, 747 Opdyke	5,000	20	Steel	Gasoline
F.W. Moore, 490 S. Opdyke	1,500	17	Steel	Gasoline
GMC Pontiac Central, 660 S. Boulevard	70	30	Steel	Used Oil
GMC Pontiac Central, 660 S. Boulevard	140	1	Steel	Used Oil
GMC Pontiac Central, 660 S. Boulevard	70	30	Steel	Used Oil
GMC Pontiac Central, 660 S. Boulevard	2,000	31	Steel	Gasoline
GMC Pontiac Central, 660 S. Boulevard	10,000	16	Steel	Gasoline
GMC Pontiac Central, 660 S. Boulevard	10,000	16	Steel	Gasoline
GMC Pontiac Central, 660 S. Boulevard	10,000	16	Steel	Diesel
GMC Pontiac Central, 660 S. Boulevard	2,000	40	Steel	Diesel
GMC Pontiac Central, 660 S. Boulevard	2,000	40	Steel	Diesel
GMC Pontiac Central, 660 S. Boulevard	2,000	40	Steel	Gasoline
GMC Pontiac Central, 660 S. Boulevard	2,000	40	Steel	Empty
GMC Pontiac Central, 660 S. Boulevard	2,000	40	Steel	Empty
GMC Pontiac Central, 660 S. Boulevard	2,000	40	Steel	Empty-Mineral Spirits
GMC Pontiac Central, 660 S. Boulevard	12,000	2	Steel	Diesel
GMC Pontiac Central, 660 S. Boulevard	12,000	2	Steel	Gasoline
GMC Pontiac Central, 660 S. Boulevard	100	5	Steel	Diesel
GMC Pontiac Central, 660 S. Boulevard	12,000	59	Steel	Gasoline
GMC Pontiac Central, 660 S. Boulevard	12,000	59	Steel	Gasoline
GMC Pontiac Central, 660 S. Boulevard	12,000	59	Steel	Axle Lube
GMC Pontiac Central, 660 S. Boulevard	12,000	59	Steel	Glycol
GMC Pontiac Central, 660 S. Boulevard	12,000	59	Steel	Axle Lube

TABLE 1

UNDERGROUND STORAGE TANKS AT NEIGHBORING SITES
Pontiac Storage Activity

[illegible]

TABLE 1

UNDERGROUND STORAGE TANKS AT NEIGHBORING SITES
Pontiac Storage Activity

SITE	CAPACITY (Gallons)	AGE (Years)	MATERIAL OF CONSTRUCTION	CONTENTS
Packer Pontiac, 500 S. Opdyke	99	Unknown	Unknown	Hydraulic Oil
Packer Pontiac, 500 S. Opdyke	99	Unknown	Unknown	Hydraulic Oil
Packer Pontiac, 500 S. Opdyke	99	Unknown	Unknown	Hydraulic Oil
Packer Pontiac, 500 S. Opdyke	99	Unknown	Unknown	Hydraulic Oil
Packer Pontiac, 500 S. Opdyke	99	Unknown	Unknown	Hydraulic Oil
Mobil, 1501 Opdyke	12,000	1	Fiberglass	Gasoline
Mobil, 1501 Opdyke	6,000	3	Fiberglass	Gasoline
Mobil, 1501 Opdyke	10,000	3	Fiberglass	Gasoline
Mobil, 1501 Opdyke	8,000	3	Fiberglass	Gasoline
Mobil, 1501 Opdyke	550	18	Fiberglass	Used Oil

the PSA site. However, due to their relative proximity (within 500 feet of the eastern border of the PSA), the USTs located at Packer Pontiac and F. W. Moore Electric are more likely to impact the PSA's subsurface environmental status in the event of a leak or spill.

The General Motors Corporation Truck and Coach facility at 660 South Boulevard (Pontiac Central) in Pontiac, Michigan appears to be listed on both the EPA's and Act 307's lists of potential uncontrolled hazardous waste sites. Potential pollutants identified at the site include cyanide and polychlorinated biphenyls (PCBs). The site is currently listed as being in the process of investigation.

E. C. Jordan attempted to review the MDNR files on the GMC Pontiac Central site in an effort to assess the potential impact this site could have on PSA. No records on the facility which referenced it as a potential uncontrolled hazardous waste site could be found. E. C. Jordan also spoke with Ms. Cheryl Wallis, an Environmental Response Division employee with the MDNR, to attempt to gather additional information on the GMC site. Based on her recollection of the site, Ms. Wallis believed that the Act 307 listing for GMC in Pontiac referred to a site located on One Pontiac Plaza, a few miles away from the PSA site. Ms. Wallis continued to state that this site was characterized by PCB-oil contamination at a railroad spur.

Apart from the GM Pontiac site, no other potential uncontrolled hazardous waste sites are referenced within a one-mile radius of the PSA based upon the most recent listings of the Act 307 sites (June 1989) and the CERCLIS sites (September 1989).

2.4.3 Climate

Based on information provided by the Michigan Department of Agriculture-Climatology, the prevailing wind in the area is from the southwest at a mean speed of 15.8 kilometers per hour. The normal, annual precipitation is 29.30 inches. Monthly average precipitation and temperatures are shown in Table 2, below.

TABLE 2
MONTHLY CLIMATIC AVERAGES FOR PONTIAC, MICHIGAN

Month	Precipitation (Inches)	Mean Temperature °F
January	1.55	22.4
February	1.36	24.7
March	2.25	34.1
April	2.87	47.2
May	2.75	58.4
June	3.52	67.9
July	2.82	72.1
August	3.05	70.5
September	2.36	63.5
October	2.31	52.3
November	2.31	39.5
December	2.15	27.8

2.4.4 Surface Water and Physiography

Topography in the Pontiac area is generally rolling and is scattered with numerous small lakes. The industrial area where the PSA is located is relatively flat. North of the facility, a moderate slope extends toward a marsh which is connected to the Clinton River.

Surface water drainage from the property drains primarily to the west into a linear depression formerly occupied by a railroad bed. This depression drains northward to a 20 to 30-acre marsh which is connected to the Clinton River. This surface water route extends approximately 3/4 mile from the facility boundary to the Clinton River; most of the route is through the marsh. Surface drainage patterns for the site and neighboring properties are shown in Figure 4.

Soils beneath the PSA have been mapped by the U.S Department of Agriculture, Soil Conservation Service, as "urban," or being "covered by streets, sidewalks, driveways, parking lots, houses and other structures that so obscure or alter the soils that identification of the soils is not feasible."⁴ In general terms, nearby soils have been mapped as sandy to clayey loams of low to moderately low permeability.

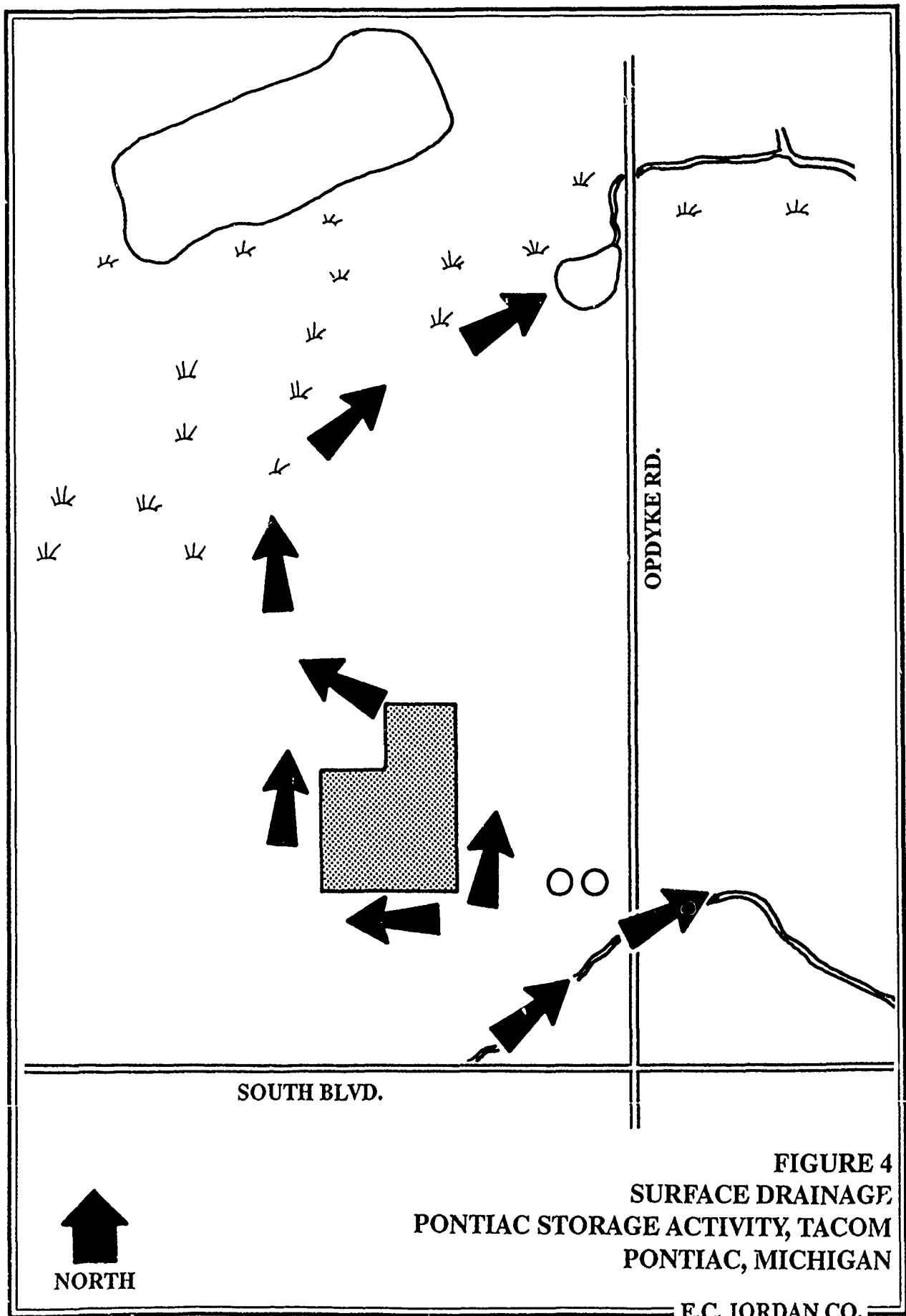
2.4.5 Groundwater and Hydrogeology

Over 300 feet of unstratified drift overlie the Coldwater Shale in this area. Boring logs prepared prior to the construction of the PSA indicate that the property is underlain primarily by sandy clays with some clayey sands down to a depth of 30 feet. The logs indicate that water was encountered at a depth of 3 feet. Mozola (1954) reports a "large and significant aquifer" immediately west of the PSA at Murphy Park.⁵ The extent of this aquifer is unknown.

A study of the hydrogeology beneath the General Motors (GM) Pontiac Truck and Coach Division immediately southwest of the PSA described the unconsolidated deposits there as 230 feet of clay till containing several small, discontinuous, sand lenses and one 10 to 25 foot thick sand aquifer at a depth of 150 feet.⁶ The clay till is underlain by a 40 foot thick sand and gravel aquifer. Bedrock was not penetrated by any of the wells that were the basis for the GM study. Water levels in the two aquifers identified in the GM study were 68 to 70 feet below the land surface. The study also identified shallower perched water zones with water levels varying from 0 to 10 feet below land surface.

Although the general geology in this area is not conducive to rapid migration of contaminants in groundwater, if a major aquifer is present nearby, any contaminants migrating into this aquifer would be transported more rapidly than in the surrounding tills.

Regional groundwater flows to the southeast⁵ (however, groundwater flow directions may vary locally due to nearby pumpage or changes in geology). Similarly, flows within perched water zones, such as those identified in the GM study⁶, are also dependent upon the local geology of the area.



2.4.6 Sensitive Environments

The only sensitive environments located within a 5-mile radius of the PSA were the marshes adjacent to the Clinton River and downstream of the PSA. Although numerous other lakes and marshes exist within this radius, it is unlikely they could be impacted by operations conducted at PSA.

2.5 AERIAL PHOTOGRAPH REVIEW

Aerial photographs of the site dated 1949, 1952, 1957, 1961, 1964, 1967, 1970, 1973, 1980, and 1985 were reviewed in an effort to gather additional information on the history and land use of the site. Copies of these photographs are included in this report as Figures 5 through 14, respectively. The 1964, 1967 and 1973 photographs are from the USEPA document, "Installation Assessment, Army Base Closure Program, Pontiac Storage Facility, Pontiac, Michigan".⁷ The 1949, 1952, 1957 and 1961 aerial photographs were provided to E. C. Jordan by the Detroit Edison Company's Cartography Division. The 1970, 1980 and 1985 photographs are from the photography files of the Oakland County Planning Commission.

In the 1949 photograph, the site is undeveloped. Apparent baseball diamonds, under construction or in the process of being regraded, are located to the east and farmed land is apparent to the southeast as well as to the west. A circular ground-scar is evident to the south. Though the cause of this scarring is not known, it is possible that this area is a borrow pit related to the construction of GMC facilities to the south.

The features of the 1952 photograph closely resemble those identified in the 1949 photograph. The scarred terrain observed in the 1949 photograph, however, appears to have expanded in the 1952 photograph, more indicative of a borrow pit.

Two apparent skeet-shooting ranges are also evident south of the existing PSA property and north of the apparent borrow pit.

In the 1957 photograph, the PSA facility has been constructed. Surface scarring to the south of the facility has expanded even more. The skeet-shooting range has been relocated to the southeast. All farming at neighboring properties appears to have ceased. The PSA's dirt roadway along the west end of the facility appears darkened in this photograph, and could indicate flooding or road oiling for dust control.

In the 1961 photograph, the west roadway still appears to be stained. Additionally, similar staining is evident on the PSA's northeast roadway. Two small white dots are also present in the northeast corner of the site. It is speculated that these two dots are aboveground tanks possibly used for storage of gasoline or diesel fuel used at the site. The surface scarred area south of the PSA appears to be in the process of being regraded in the 1961 photograph. Several cars are evident at the northwest corner of this area indicating activity. Erosion is evident along the site's western border.

In the 1964 photograph, the baseball diamonds located east of the PSA have been replaced by two aboveground water storage tanks and buildings associated with

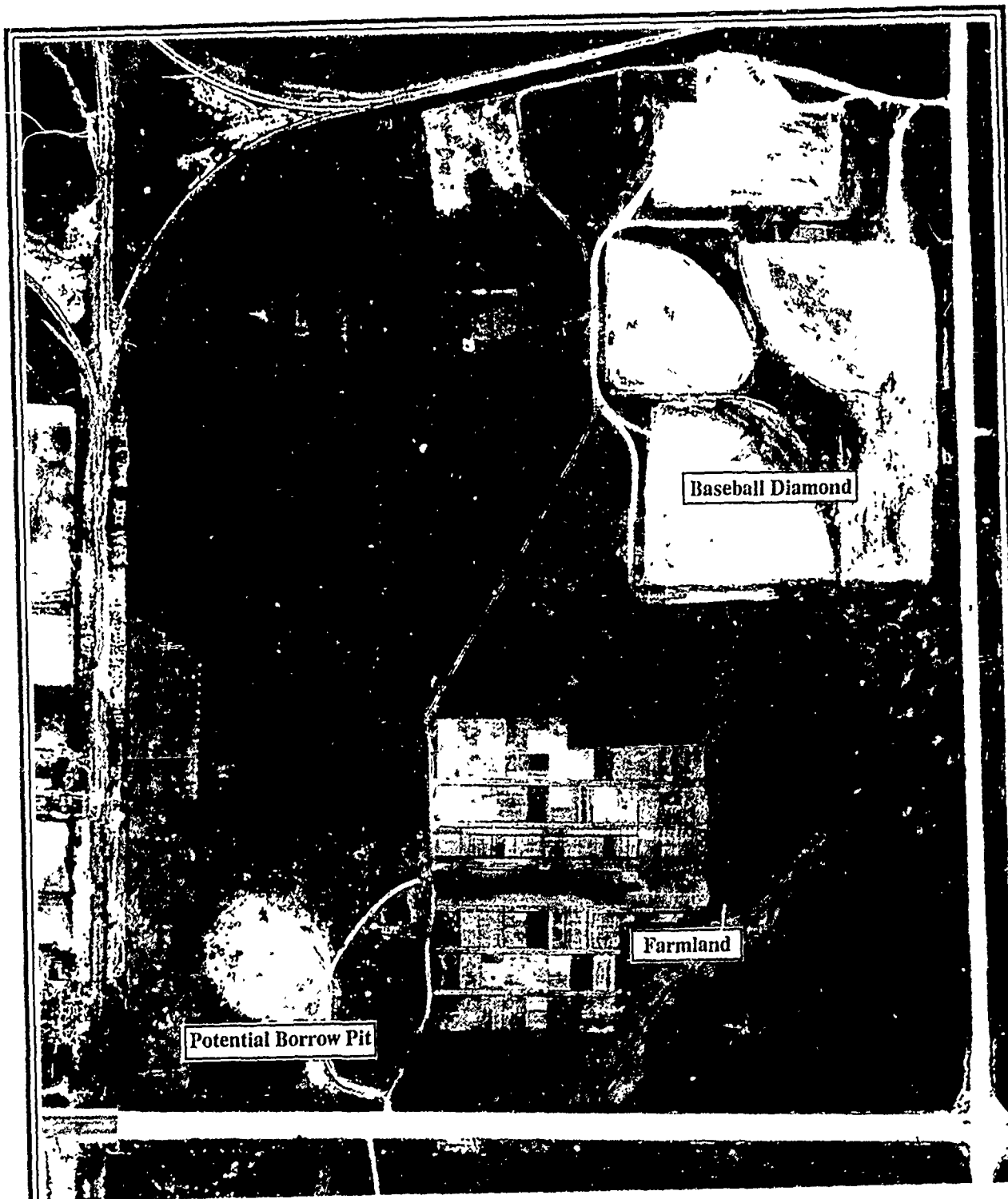
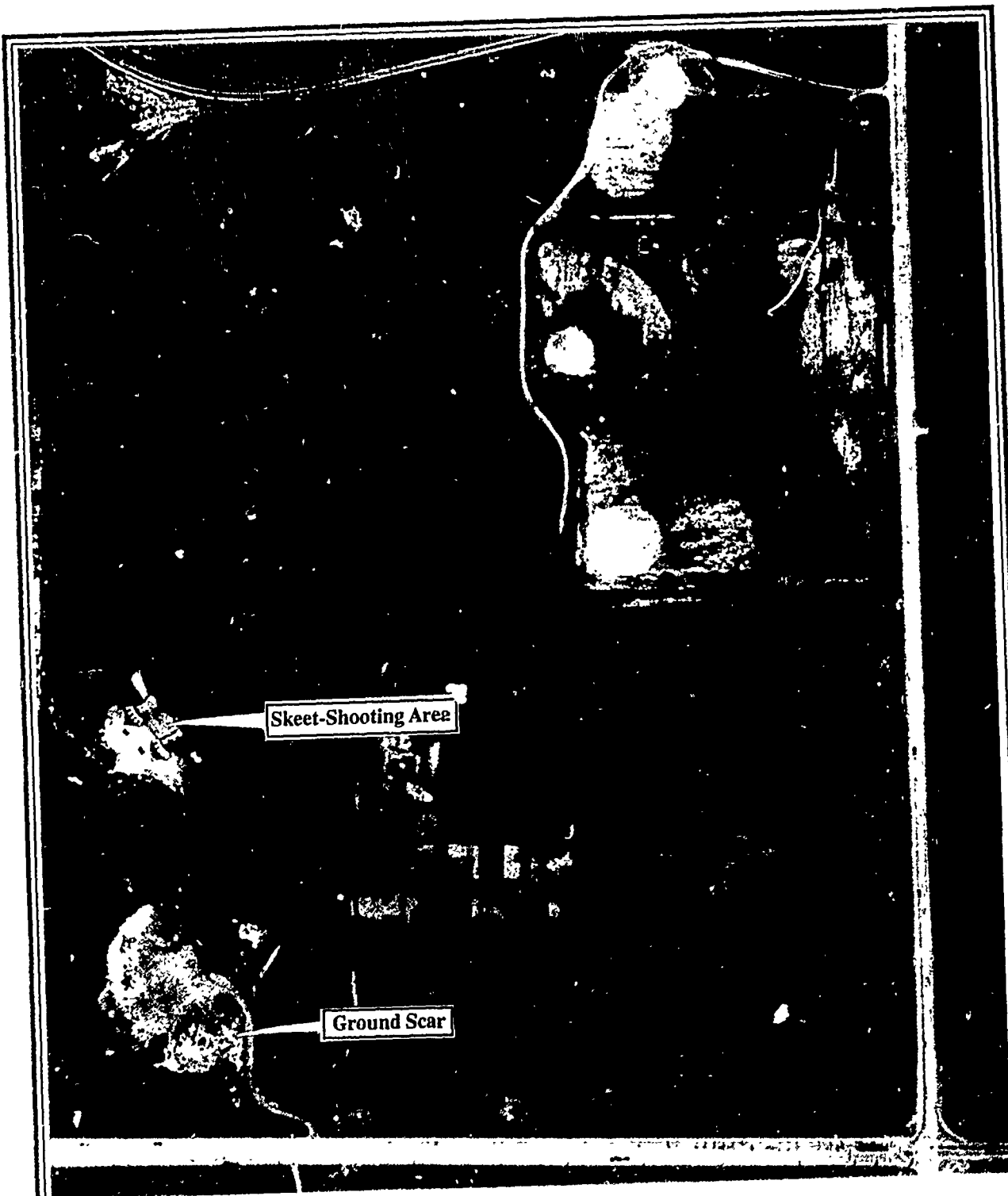


FIGURE 5
AERIAL PHOTOGRAPH-1949
PONTIAC STORAGE ACTIVITY, TACOM
PONTIAC, MICHIGAN



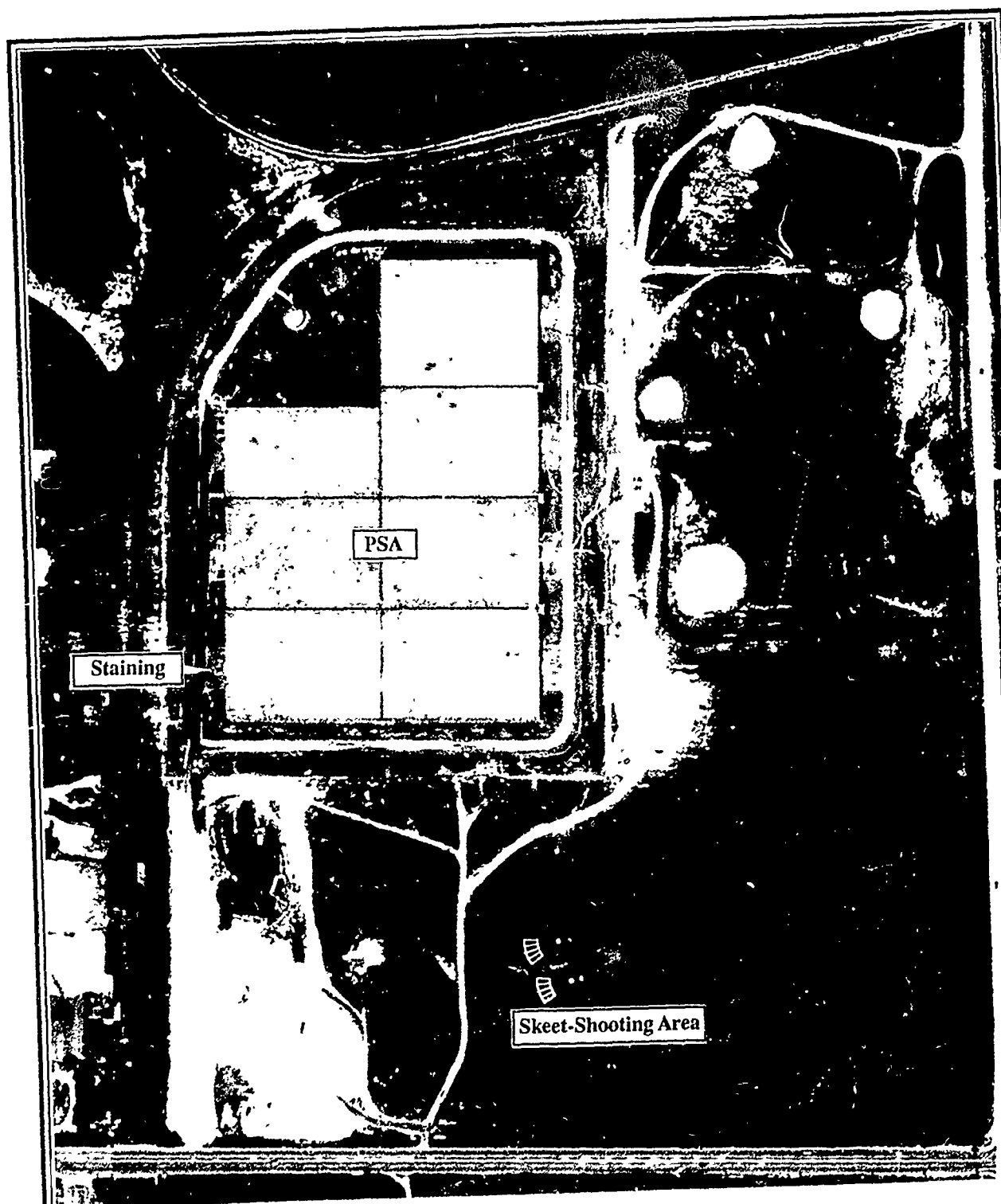
E.C. JORDAN CO.



NORTH

FIGURE 6
AERIAL PHOTOGRAPH-1952
PONTIAC STORAGE ACTIVITY, TACOM
PONTIAC, MICHIGAN

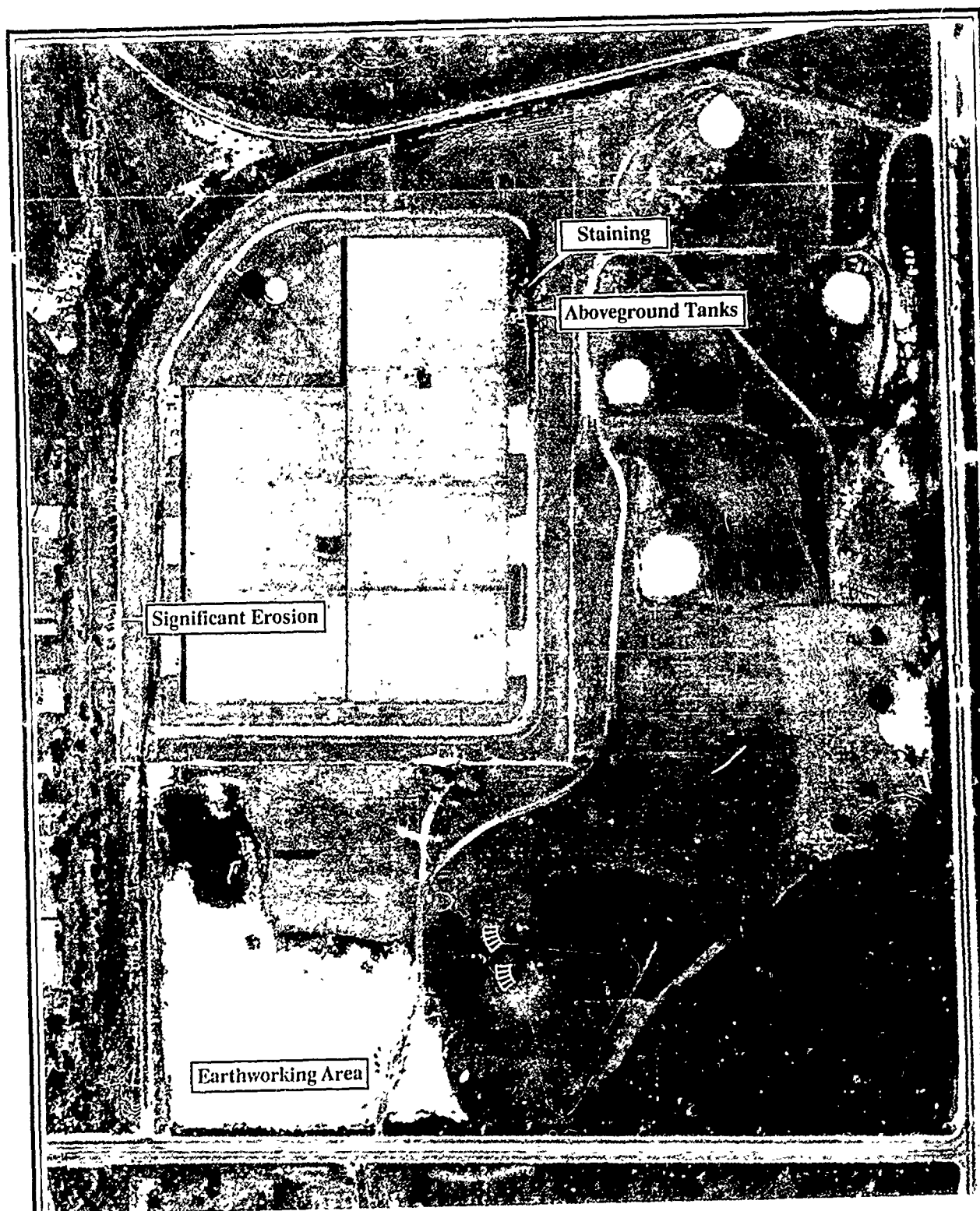
E.C. JORDAN CO.



NORTH

FIGURE 7
AERIAL PHOTOGRAPH-1957
PONTIAC STORAGE ACTIVITY, TACOM
PONTIAC, MICHIGAN

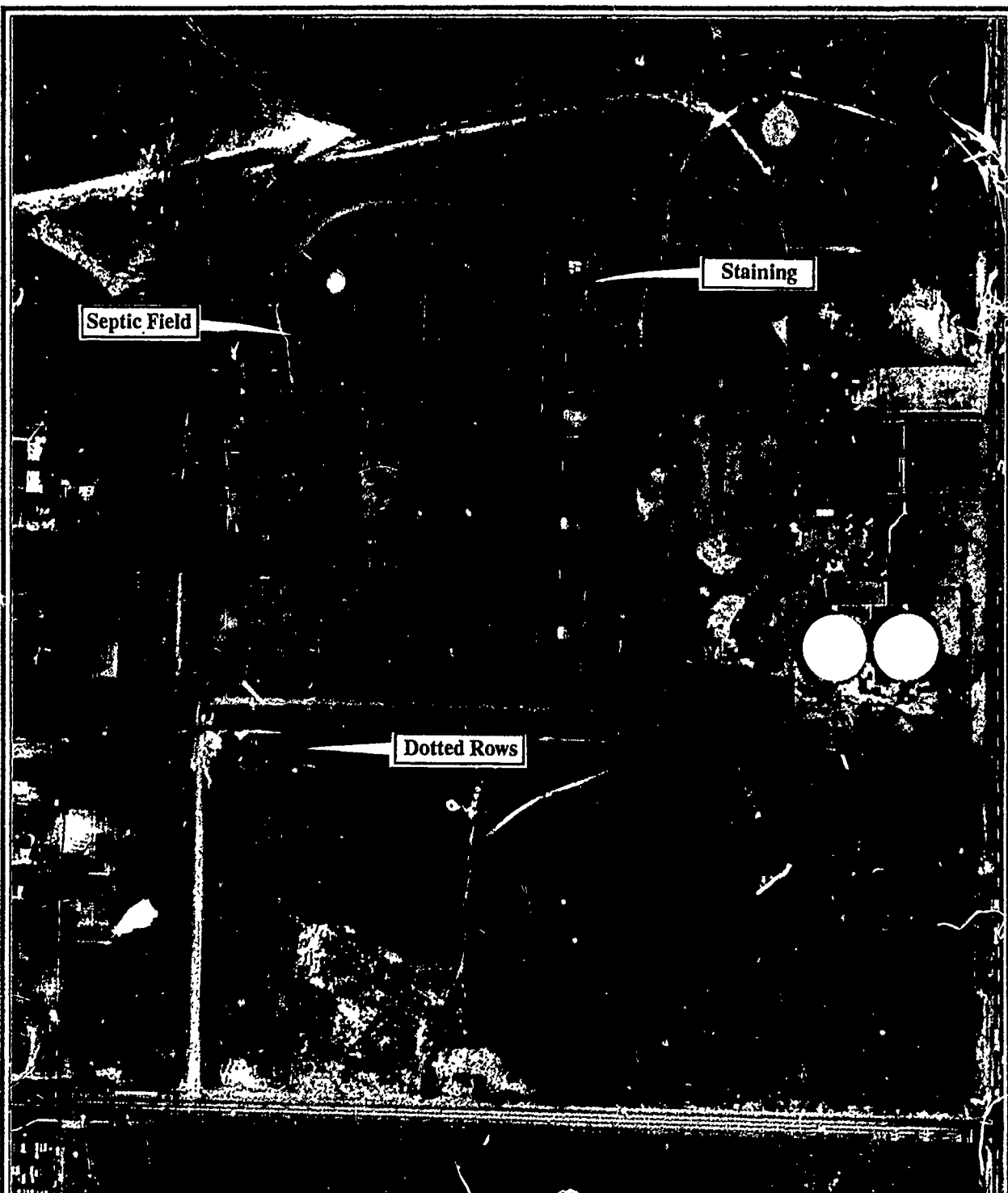
E.C. JORDAN CO.



NORTH

FIGURE 8
AERIAL PHOTOGRAPH-1961
PONTIAC STORAGE ACTIVITY, TACOM
PONTIAC, MICHIGAN

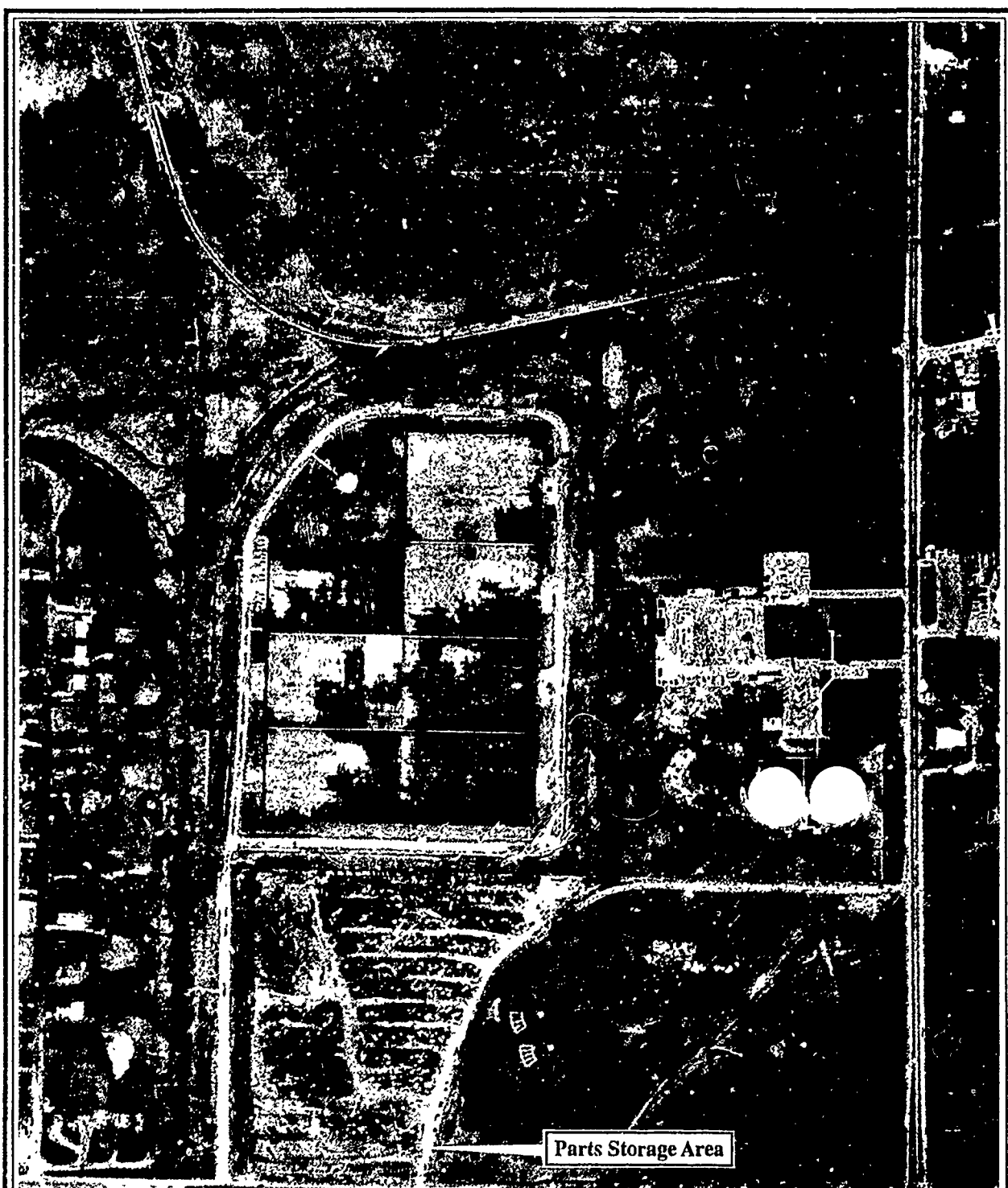
E.C. JORDAN CO.



NORTH

FIGURE 9
AERIAL PHOTOGRAPH-1964
PONTIAC STORAGE ACTIVITY, TACOM
PONTIAC, MICHIGAN

E.C. JORDAN CO.



NORTH

FIGURE 10
AERIAL PHOTOGRAPH-1967
PONTIAC STORAGE ACTIVITY, TACOM
PONTIAC, MICHIGAN

E.C. JORDAN CO.

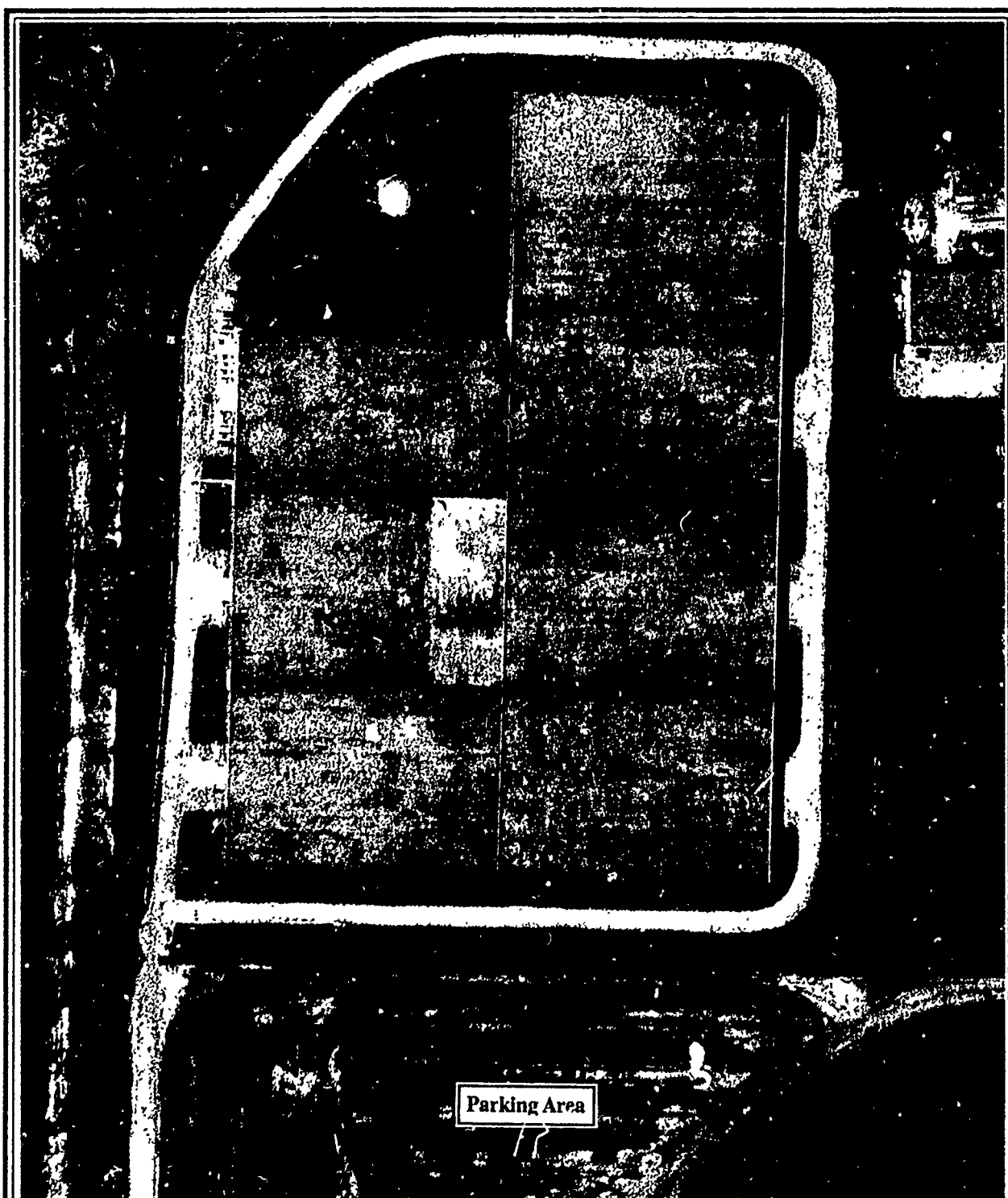
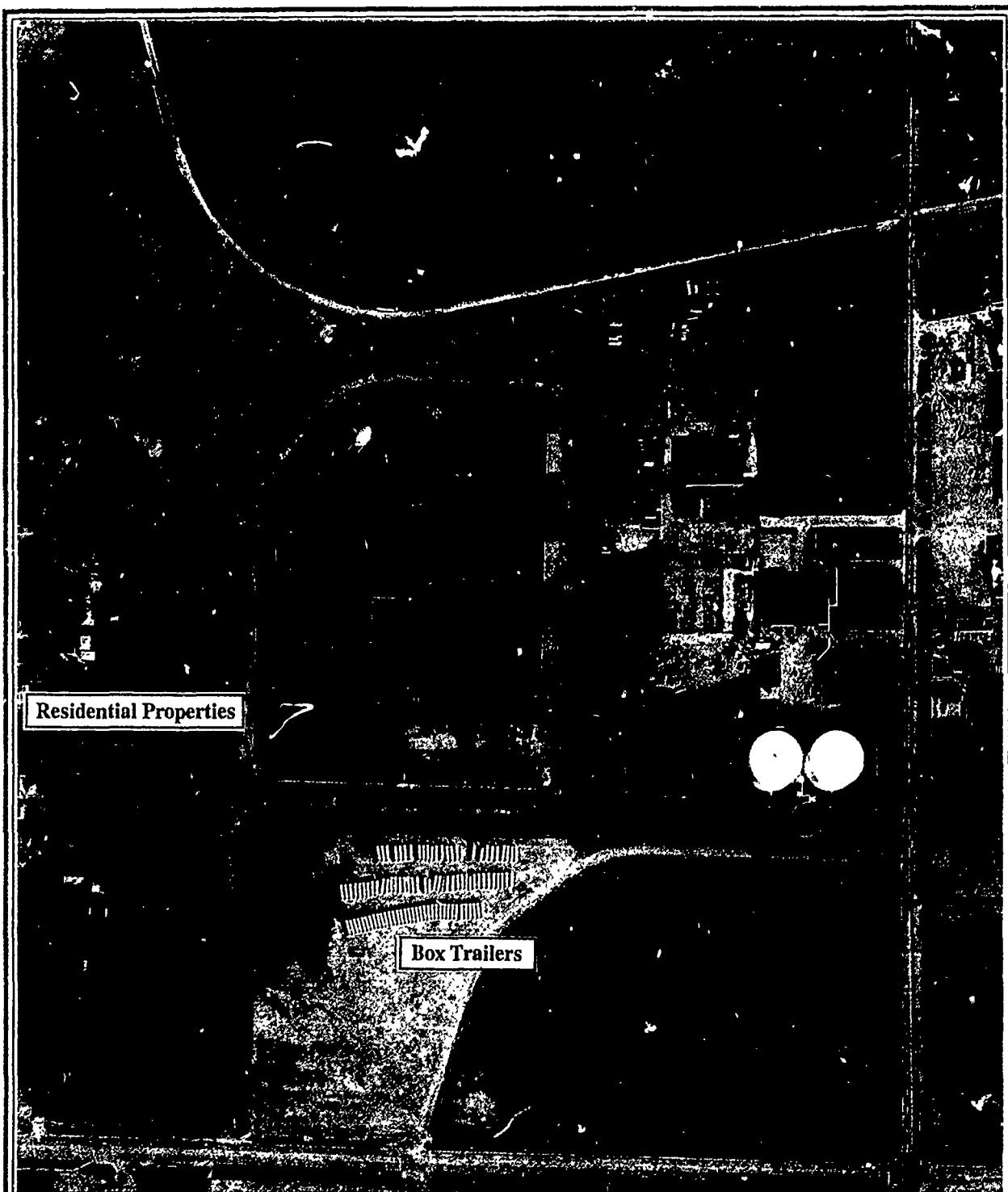


FIGURE 11
AERIAL PHOTOGRAPH-1970
PONTIAC STORAGE ACTIVITY, TACOM
PONTIAC, MICHIGAN

E.C. JORDAN CO.



NORTH

FIGURE 12
AERIAL PHOTOGRAPH-1973
PONTIAC STORAGE ACTIVITY, TACOM
PONTIAC, MICHIGAN

E.C. JORDAN CO.

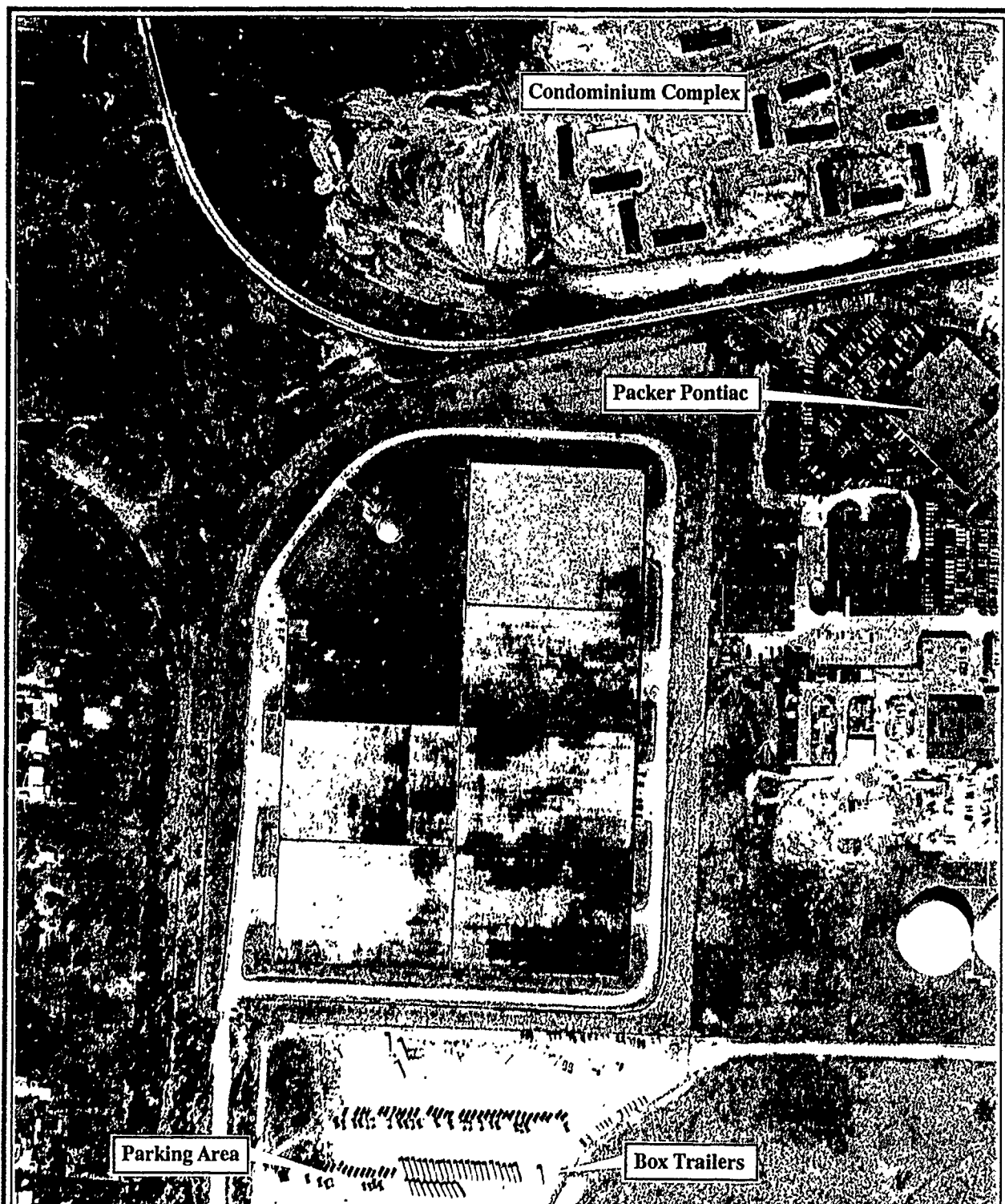


FIGURE 13
AERIAL PHOTOGRAPH-1980
PONTIAC STORAGE ACTIVITY, TACOM
PONTIAC, MICHIGAN



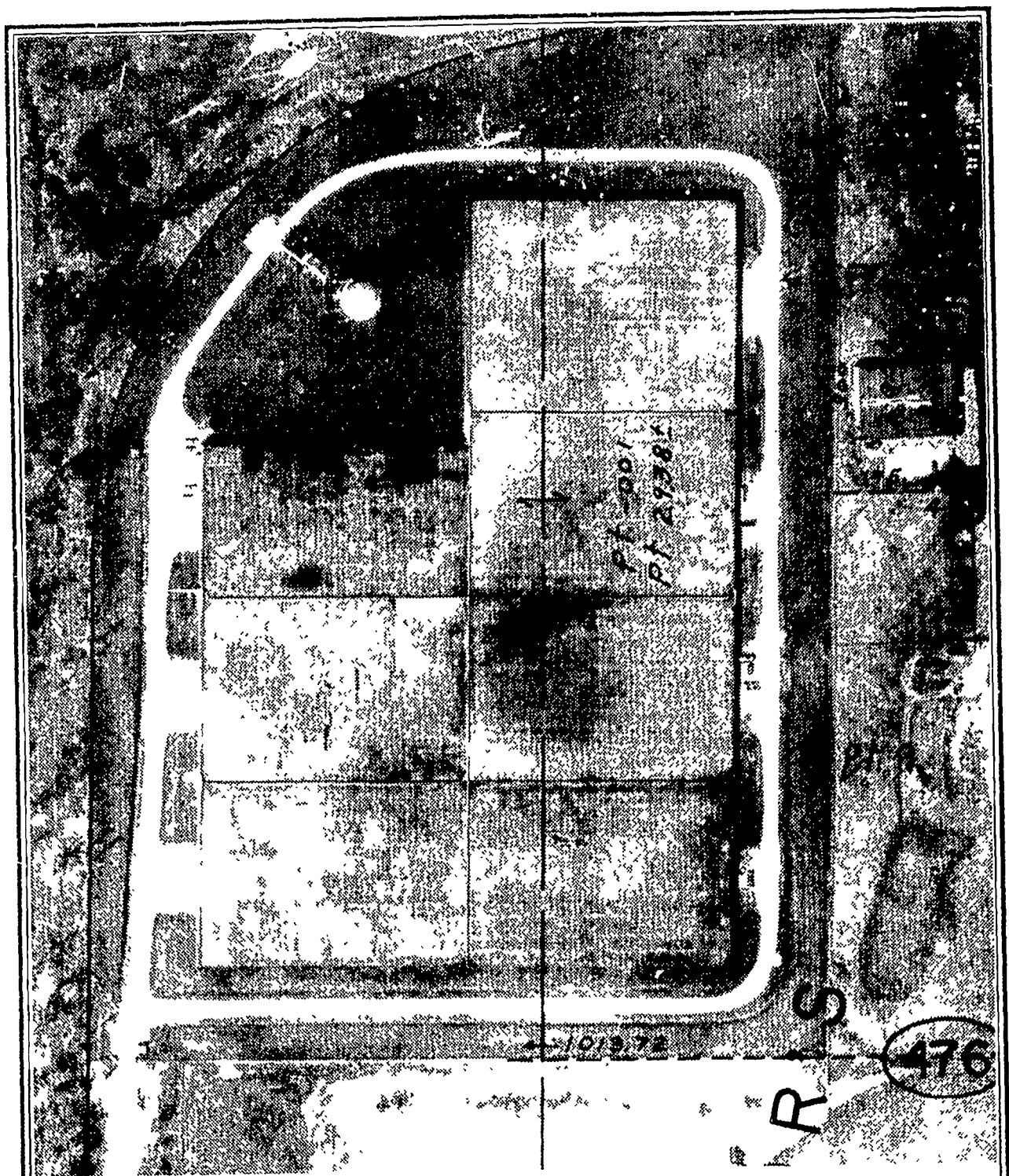


FIGURE 14
AERIAL PHOTOGRAPH
PONTIAC STORAGE ACTIVITY, TACOM
PONTIAC, MICHIGAN

E.C. JORDAN CO.

the City of Pontiac water storage/service operations. Ground-scarring observed south of the site in earlier photographs appears to be mostly covered with vegetation. Dotted rows, however, are present along the northern and eastern edges of this formerly ground-scarred area. The origin of these markings cannot be determined from the photograph. The outline of the septic field is clearly evident due north of the western half of the facility. Small, darkened areas, possibly ground stains or shadows, are evident along the PSA's northeast roadway.

Rolloff boxes, parts racks, and/or crates are located to the south of the PSA site in the 1967 photograph. The contents, if any, of these vessels, is not known. Since that area is the property of GMC, it is probable that the items stored are automobile parts associated with production activities occurring at either Pontiac Central or Pontiac East.

As evident in the 1970 photograph, two additional buildings are now present to the east of the PSA facility. In addition, the area south of the PSA now appears to be used as a parking area. Three rectangular objects, possibly rolloff boxes or aboveground storage tanks, are evident in the northeast corner of the PSA site.

In the 1973 photograph, approximately 100 box trailers are present due south of the PSA property. Mounded material is located near these box trailers to the west. The K-Mart and associated commercial buildings east of PSA and across Opdyke are also evident in the 1973 photograph.

In the 1980 photograph, the Packer Pontiac dealer and an apparent condominium complex are evident to the northeast of the PSA site. The area south of PSA appears to still be used as a parking area for box trailers and automobiles.

The 1985 aerial photograph does not appear to significantly differ from the 1980 photograph.

3.0 ENVIRONMENTALLY SIGNIFICANT OPERATION

E.C. Jordan identified several potential environmentally significant operations (ESOs) at the PSA site. These ESOs are as follows:

- ° Underground storage tanks in use or formerly in use at the site;
- ° Aboveground storage tanks;
- ° Potential asbestos sources in the boilerhouse and office area;
- ° Storage of materials in drums;
- ° Paint storage and use;
- ° Storage of equipment;
- ° Electrical equipment; and
- ° On-site septic sewer system removed from service in 1977.

Where practical, the location of the ESO's outlined above are shown on Figure 15. A discussion of each ESO is presented in the sections below.

3.1 UNDERGROUND STORAGE TANKS

The PSA has used, or is currently using, two underground tanks for the storage of heating fuel. One of the tanks, a 10,000 gallon capacity steel tank located in the northwest corner of the site in proximity to the boilerhouse, was removed in February, 1984. Sites Development, Inc. removed the tank under the monitoring of a PSA representative. A checklist of items inspected by the PSA representative during the removal is presented in Appendix C, and included categories for "unstable health hazards" in the soils and evidence of "environmental hazards". No observations concerning these items are noted on the checklist and, based on the review of the checklist, it appears that these items were "approved" ("AP") by the PSA representative.

The second tank, a 1,000 gallon capacity fiberglass tank, is currently in use at the site and is located due east of the main building's Section C. This tank was not referenced in either assessment report furnished through USATHAMA. Based upon the review of a construction blueprint for this tank, it is believed that the tank was placed in service in 1978 or 1979. According to the PSA Site Supervisor, the site does not routinely inventory the contents of the tank nor has it arranged to have the tank tightness-tested since its installation. The PSA Site Supervisor estimates that between 4,000 and 5,000 gallons of fuel transfer through the tank per year.

During the visit to the PSA, E. C. Jordan observed dead grass and slightly darkened soils near the fill port of the existing UST. The dead grass and staining sloped to the drainage ditch located east of the main building and west of the facility's service drive. It is believed that the dead grass and stained soil are attributable to spills of diesel fuel released as overfill during fill-up operations.

The apparent release of fuel is an existing environmental threat to the surface and subsurface soils of the site and, due to migration and the potential for spill reoccurrence, a potential environmental risk to the surface waters and groundwater in the area. Measures need to be taken to assess the extent of contamination in the area, remove/treat contaminated resources, and ensure that

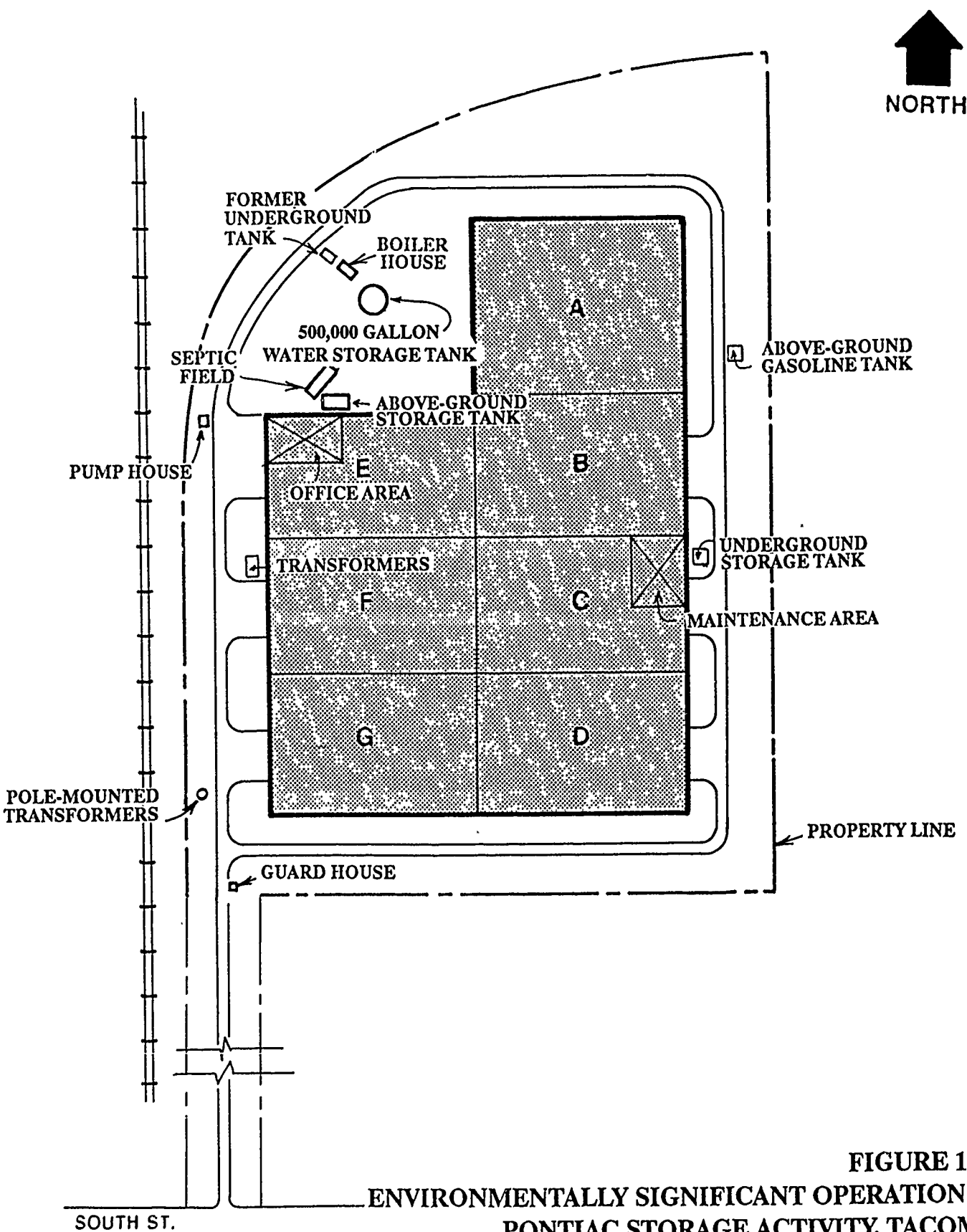


FIGURE 15
 ENVIRONMENTALLY SIGNIFICANT OPERATIONS
 PONTIAC STORAGE ACTIVITY, TACOM
 PONTIAC, MICHIGAN

future releases do not occur.

There is an inherent environmental risk associated with using underground storage tanks to store petroleum products. Releases from leaking underground storage tank systems can often lead to severe subsurface soil and groundwater contamination problems. Though no information was uncovered which would indicate that the two tank systems in use or formerly used by the site had experienced losses, a subsurface sampling program should still be implemented to confirm that both tanks, especially the 10,000 gallon heating oil tank (believed to be approximately 20 years old when removed), have not experienced subsurface losses. As an alternative to conducting a subsurface soil investigation near the existing UST, PSA may wish to consider tightness-testing the tank by a method capable of detecting tank losses of 0.10 gallons per hour.

3.2 ABOVEGROUND STORAGE TANKS

Three aboveground storage tanks are in use at this site. Two of the tanks, a 1,000-gallon capacity heating oil tank and a 600-gallon capacity gasoline tank, are located outdoors on the northwestern and northeastern areas of the PSA site, respectively. The third tank, a 260-gallon capacity diesel fuel storage tank, is located indoors in Section C.

In the two previous assessment reports for the site, an additional tank located next to the 1,000 gallon tank is referenced. These reports also discuss stained soils located around the 1,000 gallon tank. The additional tank and stained soils were not observed during E. C. Jordan's site visit.

The 1,000 gallon tank stores heating oil used to heat the office area located in Section E. This tank is not equipped with secondary containment and is located on concrete saddles above uncovered soil. The 600 gallon gasoline tank stores fuel for vehicles used at the site. The tank is located with its dispensing pump in an asphalt bermed area. The base of this secondary containment system also appeared to be constructed of asphalt. Several cracks in, and missing pieces of, the berm were observed.

Discolored soil and dead grass were observed at the southeastern corner of the gasoline tank containment area in proximity to the cracks in the containment berm. It is believed that this staining is attributable to losses of gasoline which are not adequately collected by the gasoline tank's berm. The stained soil/dead grass area covers approximately 25 square feet and slopes with the site grade to the east.

The 260-gallon indoor tank stores diesel fuel used to power saws, forklifts and other equipment used inside the main facility. The tank is not equipped with secondary containment. Minor stains were evident on the concrete floor below the tank and are believed to have been caused by drips and small spills of fuel occurring during fuel transfer operations.

The stained soil and dead grass, as well as the stained soils referenced in previous USATHAMA site assessment reports for PSA, may be indicative of past releases and are existing environmental threats to the surface and subsurface soils of the site and potential environmental threats to the groundwater and

surface water located at the site and offsite on neighboring properties. Measures need to be taken to a) determine the extent of contamination caused by these fuel releases, b) remove and/or treat the contaminated resources, and c) ensure that future releases do not occur.

As outlined in Title 40 of the Code of Federal Regulations (CFR), Parts 109 through 114, a Spill Prevention Control and Countermeasure (SPCC) Plan is required for a site if: 1) oil or related petroleum hydrocarbon storage at a facility exceeds an aggregate 1,320 gallons aboveground, and 2) the potential exists for a spill to reach navigable waters.

In light of the quantity of fuel oil and gasoline used and stored at the site and the potential for oils/gasoline to migrate to surface waters via PSA's stormwater drainage system, a SPCC Plan appears to be required for the site. Among its provisions, the SPCC Plan must a) predict the consequences of a spill and establish contingency plans for dealing with the spill, b) establish inspection procedures to prevent spills and train employees to react appropriately to them, and c) be certified by a registered professional engineer.

3.3 POTENTIAL ASBESTOS SOURCES

Several potential asbestos sources were observed in both the boilerhouse and the main facility's administrative office. The sources, their locations, estimated quantities, and relative condition are described as follows:

- Pipe insulation in the Boilerhouse. Approximately 40 linear feet of 6-inch line insulation and 20 linear feet of 2-inch line insulation. The insulation is beginning to fray at the edges; overall condition is fair
- Pipe insulation in the main facility's furnace room. Approximately 30 linear feet of 1-inch line insulation. Insulation appeared to be in good condition.
- Pipe insulation on hot-water pipes in restrooms of the main facility. Approximately 30 linear feet of 1-inch line insulation. Insulation appeared to be in good condition.
- Ceiling tiles and floor tiles in the office area of the main facility. Approximately 2,000 square feet of ceiling tile and 2,000 square feet of floor tiles. Some ceiling tiles are showing signs of water damage and some floor tiles are cracked and/or loosened from the floor. Relative condition of both sources is fair to good.

The presence of asbestos at a site often adversely affects its market value. Additionally, regulations are in effect which regulate the allowable levels of asbestos fibers in the ambient air and the maintenance/removal of asbestos sources. Accordingly, sampling and analysis of these potential asbestos sources is recommended to determine if asbestos is present at the PSA.

3.4 STORAGE OF MATERIALS IN DRUMS

Three drums partially full of material visually identified as lubricating oils

and two full drums labeled as containing roofing tars are located in the boilerhouse. Two of the oil drums are situated on their sides in a drum rack and are positioned over oil drip pans.

The concrete flooring around all three oil drums and the drip pans exhibited oil stains. The drummed oil is believed to have been used for maintaining machinery used or stored in the main facility. The roofing tar may have been used to repair roof leaks. If these drummed items are of no future use, arrangements should be made to properly dispose of them.

The oil stains on the floor of the boilerhouse should be cleaned. Samples of the stains should be collected before cleaning to determine if the oils released to the floor contained polychlorinated biphenyls (PCBs).

3.5 PAINT/SOLVENT STORAGE AND USE

At present, painting and degreasing operations at the PSA site have been greatly reduced relative to past operations. As indicated by the PSA Site Supervisor, painting is only performed on an as-needed basis and the paints are applied with brushes as opposed to spray-guns. Degreasing operations now conducted at the site involve wiping down equipment with diesel fuel soaked rags. After use, the remaining fuel on the rags is allowed to dry indoors. The rags are then disposed with the site's general refuse.

Paints are currently stored at the site in flammable storage cabinets located in Section C's maintenance area. At the time of the site visit, approximately 30 1-gallon cans of paints and paint thinner were being stored in the cabinets. A review of the labels of randomly selected paint cans showed that the solvent in the paints was predominantly "petroleum distillates". Lead compounds, xylenes, and toluene were also listed as constituents in many of the paint can labels reviewed.

According to the PSA Site Supervisor, painting operations have nearly ceased since Serv-Air became the site contractor in 1984, and the majority of the paints stored at the site are over five years old. If the paints presently stored at the site are of no future use to the site, arrangements should be made to ensure that the paints are properly disposed.

Based on information supplied in the original site assessment report, the degreasing of machinery in the past involved spraying down equipment with a volatile solvent (consisting of 5 percent tetrachloroethylene, 25 percent dichloromethane, and 70 percent Stoddard solvent) and brushing solvent into those areas not sufficiently cleaned during spraying. Degreasing was conducted over large pans wherein the sprayed solvent was allowed to evaporate. Following evaporation, residues (such as oil, grease, dirt, and paint chips) remaining in the drip pans were removed with rags and disposed of with the site's general refuse.

When painting was required in the past, curtains were placed behind the unit being painted to collect/control paint overspray. When loaded with paint overspray, the curtains were removed from service and disposed of with the site's general refuse.

Degreasing and painting operations have always been conducted in the Section C maintenance area. Based on the review of this area during the site visit, no special ventilation appears to have been provided for the painting/degreasing area despite a recommendation by the U.S. Army's Environmental Hygiene Agency to provide such in its letter dated August 18, 1978 (Appendix D). Accordingly, the potential existed for overspray to miss the spray paint curtains and settle on the floors, walls, and rafters of the maintenance area. Because lead was noted as a constituent in some paints used at the site, a wipe sample collection program is recommended for the maintenance area to determine if this area has been contaminated by lead-containing paint overspray.

3.6 STORAGE OF EQUIPMENT

At present, approximately 770 pieces of equipment, many of which are compiled of several smaller parts, are stored at the PSA. Files for each piece of equipment are maintained in the office area of the PSA. Information found in the files includes the type of machinery, number of pieces associated with the equipment, shipment papers, and storage location within the warehouse. For equipment with a hydraulic oil reservoir and/or an oil coolant system, oil sample analytical results for polychlorinated biphenyls (PCBs) are also included in the files.

The types of equipment stored at the facility include Boring Machines, Turning Machines, Drilling Machines, Gear Shapers, Lathes, Welders, Positioners, Hydraulic Presses, and Forging Machines. In general, the equipment stored at the site appears to be associated with the manufacturing of tanks and associated army vehicles, and ordnance equipment. No equipment was noted which might be associated with the manufacture of chemical agents.

The files for a heat treating unit, acid pickling units, and phosphating lines were observed. Because the operation of these units typically involves hazardous chemicals such as strong acids and bases and heavy metal constituents, the existing conditions of these units were specifically observed during the site visit to determine if they might pose a threat to the PSA's environmental condition. A rust-and-white-colored powder material was observed under one of the pickling units located in the northwest corner of Section C. According to the PSA Site Supervisor, roof leaks are common in that area of the building and the powdered material could be fragments of gypsum board carried downward from the roof with the leaking water. Samples of this material on the floor should be collected and analyzed to ensure that it is not potentially hazardous material from the pickling units.

No notable observations were made relative to the heat treating units or the phosphating lines.

The PCB analytical results for randomly selected pieces of equipment were reviewed as a part of this enhanced assessment program. All totaled, approximately 550 PCB sample results were reviewed. Analysis of the samples was performed by one of two laboratories; A & B Laboratories (A & B) of Farmington Hills, Michigan,⁸ and Environmental Quality Laboratories (EQL) of Warren, Michigan.⁹ Both laboratories employed U.S. EPA Method 600-14-81-045 for the

analysis of the PCB samples. The detection levels for the A & B samples, however, was 25 parts-per-million (ppm) while the detection level for EQL was 1.0 ppm. Despite the differences between the two, both detection levels are adequate for determining whether regulated levels of PCB are present in the machines.

Except for six pieces of equipment still stored within the PSA, no detectable levels of PCB were noted in the analytical results reviewed. The six pieces of equipment exhibiting detectable levels of PCB are as follows:

Gear Shaper 3414-00272 (41 ppm, PCB Aroclor 1242)
Magnetic Insp. Unit 0234-5639-00067 (32 ppm, PCB Aroclor 1254)
Magnetic Insp. Unit 0234-5639-00078 (36 ppm, PCB Aroclor 1254)
Lathe 0437-3416-30802 (31 ppm, PCB Aroclor 1242)
Lathe 0437-3416-32491 (31 ppm, PCB Aroclor 1242)
Milling Machine 0472-3417-13052 (26 ppm, PCB Aroclor 1242)

Though the levels of PCB detected in the above equipment are below 50 ppm (the level at which an item is regulated as PCB-contaminated under the Toxic Substances Control Act, TSCA, 40 CFR Part 761), care should be given in moving the above equipment so as to ensure that none of the PCB-containing oils are released. In addition, the Gear Shaper oil should be resampled and analyzed because it is relatively close to the regulated PCB level.

During the file review, 14 pieces of equipment were noted as having undergone a decontamination effort. The updated installation assessment report indicated that only 12 units had been decontaminated. The 14 pieces of decontaminated equipment are as follows:

<u>Type of Machine</u>	<u>Identification No.</u>
Grinder	0230-3415-03011
Hydraulic Press	XM1-62021-014435
Milling Machine	0085-3417-19858
Grinder	0230-3415-03016
Grinder	0230-3415-03017
Grinder	0230-3415-04864
Magnetic Insp. Unit	0234-5639-00116
Lathe	0437-3416-32674
Lathe	0437-3416-32889
Hydraulic Press	0437-3442-01311
Brooching Machine	0444-3412-00359
Lathe	0472-3416-25118
Drilling Machine	0581-3413-11309
Drilling Machine	0581-3413-11310

As discussed in the updated Installation Assessment Report, the PCB-contaminated oils in the above machines were removed "by the contractor", determined to be A & B, in 1984. Information obtained by USATHAMA indicated that the removed oils and decontamination materials were placed in eleven 55-gallon drums and stored until August 1985 in A & B's former location in Garden City, Michigan, when the

drums were transported with manifest to the Defense Re-utilization and Marketing Office (DRMO) at Selfridge Air Force Base in Mount Clemens, Michigan. In August 1986, the 11 drums of material (plus two additional drums from an unknown source) were sent by manifest to PPM, Inc. in Kansas City, Missouri, where the oils were de-chlorinated by chemical treatment with sodium.

Analytical records on the PCB levels in the oils removed by A & B were not available through A & B's laboratory. According to A & B's Laboratory Manager, these records were destroyed by A & B after 3 years retention. Based on a review of PPM's treatment permit, however, the facility cannot process liquid wastes with PCB concentrations in excess of 10,712 ppm. Accordingly, the PCB levels in oils removed during the decontamination project at PSA are known to range between 50 and 10,712 ppm.

Since known PCB-contaminated items have been stored at the site, a wipe sampling program should be implemented within the main building at the site to determine if the floor has been contaminated by PCBs. The wipe sampling program should focus on those areas of the building where the decontaminated equipment was/is stored and on randomly selected areas of the floor exhibiting oil-stains.

3.7 ELECTRICAL EQUIPMENT

The identification of liquid-cooled electrical equipment at a site is of importance due to the potential for such units to contain PCBs and, thus, fall under TSCA regulation.

Three ground-mounted liquid-cooled transformers are located in an outdoor, fenced and locked, concrete-based substation along the western wall of the main building. Three pole-mounted liquid-containing transformers on one-pole are also located west of the main building along the site's western border. The manufacturer plates on all six transformers could not be seen. However, none of the units appeared to exhibit labels which would indicate that they contained PCBs.

Each of the ground-mounted units are estimated to contain between 150 and 200 gallons of dielectric fluid. The pole-mounted units contain an estimated 25 to 30 gallons of fluid. The units appeared to be in good-working order and did not exhibit evidence of leakage.

Based on information gathered from Detroit Edison Company (the local utility) and from the TACOM Environmental Coordinator, the pole-mounted units are the property and responsibility of Detroit Edison while the ground-mounted units are owned by the PSA.

Under federal TSCA regulation, transformers with PCB concentrations in excess of 0.05% (500 ppm) by weight are required to clearly exhibit labels indicating that they contain PCBs. As stated above, such labeling was not evident on the units. Based on previous experience E.C. Jordan has had with Detroit Edison, E.C. Jordan has learned that Edison has established a corporate-wide program to properly label its transformers in accordance with TSCA regulations.

In an effort to determine the PCB concentrations in the Edison transformers, E.C.

Jordan spoke with Mr. Lloyd Clapper of Edison. According to records which Mr. Clapper reviewed, these transformers contain mineral oil, rather than PCB fluids such as askeral. Based on the age of the units, however, Mr. Clapper feels it is likely that the three units still could contain low levels of PCB (less than 500 ppm) due to cross-contamination during manufacturing.

The level of PCBs in the ground-mounted units is not known. The PSA, however, is presently developing a program to sample and analyze its transformers.

3.8 SEPTIC SEWER SYSTEM

Since 1977, all of the domestic wastewater generated at the PSA has been discharged to the City of Pontiac's Publicly Owned Treatment Works (POTW) System. Prior to connecting into the POTW system, however, the PSA's wastewaters were directed into an on-site septic sewage system. These wastewaters included sanitary wastes from the office area's restrooms and water from the sinks and floor drains located in the office area. No other drains or sources of wastewaters were observed which led to the septic system. The septic system consisted of a 1,500 gallon concrete septic tank which discharged to a tiled leaching field. This septic system was located in the northwest corner of the facility due north of the present administrative office area (Section G).

According to the TACOM Environmental Coordinator, and as indicated by the Installation Assessment of 1980, the septic tank system was taken out of service and removed by Sites Development in 1977, when the PSA connected to the Pontiac POTW system. Typically, when a septic system is removed, the system's tank is removed but the drain tiles remain in place. The TACOM Environmental Coordinator did not know if Sites Development removed both the septic tank and drainage field tiles associated with the septic sewer system.

Through the late 1970s, septic tank cleaners which contained such solvents as benzene, methylene chloride, and 1,1,1 trichloroethene were commonly added to septic systems in small quantities (generally less than 5-gallons per years) to enhance the flow of sludges into the septic drain fields. It is not known if such cleaners were used on the PSA septic system. If used, however, they could adversely impact the subsurface soil conditions at and near the septic drain system. To investigate the potential impact of the septic system on the site's environmental conditions, PSA may wish to develop and implement a subsurface soil study in the vicinity of the drain field. Such a study could be combined with the study recommended for the former UST area.

4.0 KNOWN AND SUSPECTED RELEASES

This section summarizes documented, suspected, or potential releases of potentially harmful or environmentally damaging materials to the area's groundwater, surface water, soil and/or air.

4.1 RELEASES TO GROUNDWATER

While no known releases to groundwater sources have been documented either at the site or on neighboring properties, several potential points of release to groundwater are present and include the following:

- ° Underground storage tanks located both on-site and on neighboring properties offsite. The potential exists for these tanks to develop leaks and release potentially harmful and environmentally damaging materials into the groundwater via the subsurface soils. Materials which could be released include gasoline, heating oil, engine oils, brake fluids, transmission oil, glycols, and hazardous wastes.
- ° The septic system and the boilerhouse underground storage tank removed in 1984. Though they are out of service, both could have been sources of release during their period of use. The use of solvent-containing septic system cleaners could have resulted in the release of pollutants to the subsurface soils and groundwater in proximity to the drainage field. If undiscovered leaks existed in the UST, diesel fuel could have also been released into the site's subsurface soils and groundwater.
- ° Known releases of heating oils and gasoline at and near the PSA's aboveground tanks. Contaminants from these spills could migrate through the surface and subsurface soils and impact the groundwater.

4.2 RELEASES TO SURFACE WATER

Surface soil staining, believed to be caused by tank overfilling or spillage during filling operations, was observed near the fill port of the underground heating oil storage tank and around the containment berm of the aboveground gasoline tank. Surface water runoff from the site leads to a system of drainage ditches which surround the main facility and discharge into wetland areas located north of the PSA site. Based on the staining pattern near the UST's fill port, heating oil released in this area is suspected of having migrated to the site's east drainage ditch. No staining, however, was observed in the ditch's confines. Due to its proximity to the east ditch, gasolines released to soil near the aboveground gasoline tank could also migrate into the site's drainage ditch system. Accordingly, the surface soil releases represent potential existing or future releases to the surface water as at and near the PSA site.

Based on the quantity of materials presently used at the site, it is unlikely that a surficial spill at the PSA would migrate to the Clinton River.

4.3 RELEASES TO SOIL

The more significant releases and potential releases to soils, both surface and subsurface, are discussed in Sections 4.1 and 4.2 above and include potential UST leak losses, the use of solvent-containing cleaners in the septic system, and surface spills near the fill port of the existing UST and aboveground gasoline tank. Additional potential sources of releases to soil include the pole-mounted and ground-mounted transformers. In the event of a transformer failure, dielectric fluids from the units could contaminate soils located below and in the vicinity of them.

4.4 RELEASES TO AIR

Past releases to the air included paint/solvents which evaporated during painting/degreasing operations and diesel fuels, heating oil, and gasoline which evaporated during filling operations or spills. Potential releases to the air include asbestos fibers which become airborne when friable sources of asbestos, if any are located at the site, are damaged or disturbed in any way.

With the notable reduction of painting/degreasing operations at the site since Serv-Air became the PSA operating contractor in 1984, the release of solvents to the air from paints and degreasers is relatively insignificant. The potential for asbestos sources to become airborne, however, increases over time as the physical conditions of asbestos sources deteriorate with age.

5.0 HUMAN AND ENVIRONMENTAL RECEPTORS

This section identifies human and environmental targets or receptors at and near the PSA site which may be affected by the known or potential future releases of harmful or environmentally damaging materials identified in Section 4.0.

5.1 GROUNDWATER

Potable water at and in the vicinity of the PSA is now supplied by the City of Pontiac. In addition, the nearest known groundwater wells to PSA which are still identified by the Oakland County and Michigan Health Departments as being in service are located approximately 1/2 to 3/4 mile away from PSA.

The wells are located southwest of the PSA. One of the known wells is located at the GMC Pontiac Central site. Water from this well is used as both cooling water and drinking water. The other two known wells are located in the residential subdivision south of GMC Pontiac Central. These wells supply drinking/potable water to that subdivision. Since all three wells draw water from depths exceeding 150 feet, it is believed that these wells are drawing from the regional aquifer. This aquifer, as discussed above, flows to the southeast. In light of the distance between PSA and the wells, the depth of the wells, the projected flow direction of the regional aquifer (away from the wells), and the relatively small quantity of potentially hazardous chemicals found at PSA, the wells would not be expected to be adversely impacted by operations conducted at the PSA site.

Based on this information, the potential threats to groundwater which were identified (and include the underground storage tanks on-site and offsite, the removed boilerhouse underground tank, the apparent surface releases of gasoline and heating oil at the site, and the former septic system), do not appear to pose a direct threat to human receptors. However, due to migration, releases to local perched groundwater could affect environmental receptors (including fish, fauna, and vegetative cover) located in the wetland areas to the north and the Clinton River to the northwest, should the local groundwater flow towards the north.

5.2 SURFACE WATER

The significant environmental threats to surface water which exist at the PSA include the apparent surface releases of heating oil and gasoline. Due to the proximity of the PSA's drainage ditches to the suspected spill areas, spilled materials could enter into these ditches and migrate toward the north and northeast, where the site's drainage appears to discharge.

Potential human receptors of releases to surface waters include children who may play in the wetlands north of the site and, to a lesser extent, surface water sportsmen who may canoe or fish the Clinton River. Environmental receptors include wildlife inhabitants of the wetlands and Clinton River areas, fish in the Clinton River, and vegetation located along the surface water bodies fed by the PSA stormwater drainage.

Though the potential exists for human and environmental receptors to be affected by surface water releases from the PSA, the chances of such exposure occurring appear very unlikely when the apparent sizes of the surface soil releases and

the distance from the points of releases to the surface water bodies are taken into consideration.

5.3 SOIL

Releases to soils at the PSA facility were presented in Section 5.2 above and include apparent releases of gasoline and heating oil. Human receptors to these releases would include site workers who might come into contact with these releases when working at the spill areas. It is important to note, however, that the site's predominant operations are conducted indoors, away from the release areas. Contact by workers with the released materials is only likely to occur, therefore, during vehicle fueling operations, during the filling/maintenance of the heating oil storage tanks, or during future site development activities.

Potential environmental receptors include grass coverings at and near the stained soil areas and small wildlife which may inhabit the site or neighboring open fields and marshes.

5.4 AIR

With the decrease of painting/degreasing operations at the site, the release of potential air contaminants such as toluene, xylene, mineral spirits, and diesel fuel has been greatly reduced and does not appear to be a significant threat to either human or environmental receptors. Workers at the site are potential receptors of airborne asbestos fibers from potential asbestos sources observed in the boilerhouse and the main facility office areas. In light of their present condition, however, and assuming they remain undisturbed, these potential asbestos sources are not likely to pose a significant threat to human receptors at this time.

5.5 OTHER RECEPTORS

Workers at the site are potential human receptors via direct contact with the gasoline, diesel fuel, heating oil, paint, oils, and paint thinner materials found at the site. With the closure of the facility, however, the sources of exposure and the potential human receptors will be eliminated.

6.0 PRELIMINARY ASSESSMENT FINDINGS AND CONCLUSIONS

Several environmentally significant operations were observed both at the PSA and at neighboring properties during the course of E. C. Jordan's performance of this enhanced preliminary assessment. A listing of these ESO's and E. C. Jordan's recommendations for either correcting them (if they require immediate action) or further investigating them (if limited information is available) is presented as follows:

- ° Surface releases near the aboveground heating oil and gasoline storage tanks and at the fill port of the heating oil UST are known threats to the environmental status of the PSA and, through migration, are potential threats to the environmental status of the neighboring properties. Immediate action is necessary on the part of PSA to a) investigate the extent of the observed releases, b) control/remove the existing threat, and c) prevent future releases from occurring through the use of secondary containment equipment or some other suitable means.
- ° One hundred underground storage tanks (USTs) are located within a 1/2-mile radius of the PSA. These tanks, and their registered owners, are listed in Table 1. These USTs represent an environmental risk to the PSA site because of the potential for them to develop leaks and release their contents to subsurface soils and groundwater. Through migration, such leaks could impact the PSA property.

The extent of risk each poses to the PSA, however, is dependent upon several factors, including distance from the PSA site, material contained in the tanks, the tank ages, and local groundwater flow direction. Taking these factors into consideration, the tanks which appear to be of greatest concern are those located at the Packer Pontiac and F. W. Moore Electric sites. To investigate the potential environmental impact of these tanks on the PSA, the PSA may wish to contact the present owners of these tanks to determine what measures they have taken to assess and ensure the integrity of their tanks. If such information cannot be obtained from the tank owners, the PSA may wish to consider preparing and implementing a groundwater study to assess the existing groundwater conditions.

- ° Until 1977, wastewaters generated by the PSA were discharged into a septic sewer system located in the northwest corner of the property due north of the office area. Through the late 1970s, it was a common practice on the part of septic system users to place relatively small quantities (generally less than 5-gallons per year) of solvent-containing septic tank cleaners, into their systems to enhance sludge dissolution. The potential exists, therefore, for such cleaning materials to have been introduced into the PSA septic system.

In addition to the septic system, the PSA used a 10,000 gallon UST to store heating oil. This tank was located approximately 200 feet due north of the septic system and was removed from service in 1984. Though no information was observed during the enhanced PA which would indicate that the tank experienced a release, potential undetected leaks or spills occurring during filling operations pose a threat to the PSA's environmen-

tal status.

To assess the potential environmental impact that both the former septic system and UST had on the PSA, a shallow subsurface soil sampling and analysis program should be prepared and implemented in the northwest corner of the property. Such a program could be conducted so that it coincides with the sampling and analysis work which may be needed to investigate the known surface releases at the site.

- In light of the quantity of petroleum hydrocarbon materials stored aboveground at the PSA and the possibility for these materials to be released to nearby wetlands and surface water via the PSA's stormwater drain system, a Spill Prevention Control and Countermeasures (SPCC) plan should be prepared and implemented at the site. As an alternative to preparing this plan, the PSA could reduce its aboveground storage to less than 1320 gallons.
- Several potential asbestos sources were observed and include drop ceiling tiles and floor tiles in the office area, and insulated piping in both the boilerhouse and office areas of the main facility. The only means of determining whether or not these materials contain asbestos is through sampling and analysis. Accordingly, a sampling program should be developed and implemented to determine which, if any, of these materials contain asbestos.
- Oil stains were observed on the floor below drums located in the boilerhouse. The drums appeared to contain oils and roofing tar. Wipe samples of the stained floor areas should be collected and analyzed, at a minimum, for PCBs. The stained areas should then be cleaned. If the drummed materials are of no future use to the site, the contents and potential hazardous constituents in the contents of the drums should be determined and the drummed materials properly disposed.
- A wipe sampling and analysis program should be prepared and implemented in the maintenance area of Section C in an effort to determine if the walls, floor and rafters of Section C have been impacted by lead-containing paint overspray.
- Several cans of paints and thinners were observed in Section C's maintenance area. If these materials are of no future use to the site, steps should be taken to ensure that these materials are properly disposed.
- Significant earth-moving activities, possibly indicative of landfilling operations, were noted on aerial photographs of the property owned by GMC due south of the PSA. The impact, if any, of these activities or the environmental status of PSA, is not known.
- Six pieces of equipment currently stored at the PSA contains PCBs at levels between 25 ppm and 50 ppm. Care should be given in moving these items to ensure that the PCB-containing oils are not released. In addition, the oil in the Gear Shaper (3414-00272) should be resampled and analyzed because its PCB level is relatively close to the regulated level of 50 ppm.

- ° Because known PCB-contaminated items have been stored at the PSA, a wipe sampling and analysis program should be developed and implemented to determine if the floor of the main facility has been impacted by PCBs. The program should focus on those areas of the PSA where PCB-containing equipment was stored or decontaminated and could be combined with the wipe sampling program recommended for the boilerhouse.
- ° The three ground-mounted transformers in the locked substation belong to the U.S. Army. The three pole-mounted transformers belong to Detroit Edison (the local utility). The PSA is in the process of developing and implementing a transformer oil sampling and analysis program to determine the level of PCB in the ground-mounted transformers dielectric fluid.

7.0 SOURCES OF INFORMATION

This section presents the sources of information used by E. C. Jordan in assembling the enhanced Preliminary Assessment report. Significant information gathered through conversation is summarized in telephone/conversation memorandums presented in Appendix E.

7.1 REFERENCES

1. Chemical Systems Laboratory, "Installation Assessment of Pontiac Storage Facility, Michigan," Report No. 179, August 1980.
2. Becker, K. A., et. al., Environmental Science and Engineers, Inc., "Update of the Initial Installation Assessment of Pontiac Storage Facility, Michigan," AMXTH-IR-A-179 (U), March 1988.
3. Michigan Department of Natural Resources, "Michigan Sites of Environmental Contamination, Priority Lists, Act 307," June 1989.
4. U.S. Department of Agriculture, Soil Conservation Service. 1982. Soil Survey of Oakland County, Michigan. Prepared in cooperation with the Michigan Agricultural Experimental Station.
5. Mozola, Andrew J. 1954. A Survey of Groundwater Resources in Oakland County, Michigan. In: Occasional Papers for 1954 on the Geology of Michigan, Publication 48, part of the Annual Report of the Geological Survey Division for 1954.
6. Camp, Dresser, & McKee, Inc., A study on the Pontiac Central Facility in Pontiac, Michigan; maintained by MDNR's Environmental Response Division; date unknown.
7. Environmental Monitoring Systems Laboratory, "Installation Assessment, Army Base Closure Program, Pontiac Storage Facility, Pontiac, Michigan," TS-PIC-89334-A, August, 1989.
8. Analytical and Biological Laboratories, Inc., PCB Analytical Results, Pontiac Storage Activity; Pontiac, Michigan; varying dates.
9. Environmental Quality Labs, Inc., PCB Analytical Results, Pontiac Storage Activity; Pontiac, Michigan; varying dates.

7.2 OTHER SOURCES

U.S. Army, Corps of Engineers. 1958. Pontiac, Michigan, Machinery Storage Warehouse, Site Plan. Drawing 33-29-04, Sheet 1 of 17.

U.S. Geological Survey. 1983. Topographic Maps (7.5' Series). Pontiac North and Pontiac South, Michigan, 1968, photorevised 1983.

U.S. Geological Survey. 1981. Topographic Maps (7.5' Series). Birmingham and Rochester, Michigan, 1968, photorevised 1981.

APPENDIX A

OAKLAND COUNTY HEALTH DEPARTMENT'S INSPECTION LETTER



C O U N T Y M I C H I G A N
D E P A R T M E N T O F I N S T I T U T I O N A L
A N D H U M A N S E R V I C E S

Daniel T. Murphy, Oakland County Executive
HEALTH DIVISION
Thomas J. Gordon, Ph.D., Manager

November 6, 1987

U.S. Army Automotive Tank Command
AMSTA; XEE
Attn: Commanding General
Bruno Zane - Environmentalist
6501 E. 11 Mile Rd.
Warren, MI 48090

RE: MIG 000007266

Dear Mr. Zane:

On October 22, 1987, staff of the Oakland County Health Division, acting as representatives of the Michigan Department of Natural Resources (MDNR), conducted an inspection of your facility located at 871 South Blvd., E., Pontiac, Michigan. The inspection was conducted to evaluate compliance of your facility with the requirements of Subtitle C of the Resource Conservation and Recovery Act (RCRA) of 1976, as amended; Michigan's Hazardous Waste Management Act, Act 64 of 1979, as amended; and Michigan's Liquid Industrial Waste Hauling Act, Act 136, P.A. of 1969, as amended.

As a result of the areas reviewed during the inspection and information provided, your facility is currently classified as a non-generator of hazardous waste.

If your facility generates or accumulates quantities of hazardous waste, your facility will be regulated under Act 64 and RCRA, and subject to all applicable regulations and generator requirements.

If you have any questions, please feel free to contact the writer at (313) 858-1312.

Very truly yours,

OAKLAND COUNTY HEALTH DIVISION
DEPARTMENT OF INSTITUTIONAL AND HUMAN SERVICES

Nelson Haynes, R.S.
Environmental Health Services

kdb

cc: OCHD
Ben Okwumabua, MDNR

RCRA/ACT 64 INSPECTION REPORT

U.S. EPA I.D. Number MI G 0 0 0 0 0 7 2 6 6
(or Michigan)

FACILITY NAME

(Mailing Address)

U.S. Army Automotive Tank Command

871 South Blvd, E

Pontiac
CITY

MICHIGAN 48057
ZIP CODE

DATE October 22, 1987

TIME OF INSPECTION (FROM) 11:00 (TO) 11:30

PERSON(S) INTERVIEWED

TITLE

TELEPHONE

Bruno Zane

Environmentalist

574-8819

INSPECTOR(S)

AGENCY/TITLE

TELEPHONE

Gary Frick

OCHD/sup. Sanitarian

858-1312

Nelson Haynes

OCHD. / Sanitarian

858-1312

Primary Business of this Facility: _____

Reason for Inspection:

X Routine _____ Follow-up _____ Complaint _____

Based upon the inspection, this facility:

- X is a non-generator/liquid industrial waste generator
_____ conditionally exempt small quantity generator
_____ small quantity generator
_____ generator
_____ transporter
_____ treatment/storage/disposal facility

FORM

A See Remarks
A
A
B
C
D

Date of Last Inspection _____

Remarks: Equipment storage only.

APPENDIX B
CORRESPONDENCE WITH USEPA

COMBUSTION ENGINEERING

89915.DOC
6088-00

September 21, 1989

Mr. Robert Hartian
U.S. EPA
Freedom of Information Act Officer
230 South Dearborn Street
Chicago, IL 60604

Dear Mr. Hartian:

Subject: Freedom of Information Act Request

This is a request pursuant to the Freedom of Information Act (FOIA), 5 U.S.C. Section 552. I understand that the United States Environmental Protection Agency (USEPA) maintains a database organized by zip code of potentially uncontrollable hazardous waste sites, as provided for in the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601 et seq., and a database of generators and treatment, storage and disposal facilities regulated under the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901 et seq. This is to request all information from these databases pertaining to zip code 48053, located in or near Pontiac, Michigan in the county of Oakland.

I also request any information in your files concerning whether the property located on, or in the vicinity of South Boulevard between Opdyke Road and East Boulevard in the City of Pontiac, Oakland County, Michigan has been identified as containing toxic substances, hazardous substances (including, but not limited to asbestos, PCBs, urea formaldehyde insulation, and petroleum products), hazardous wastes or any other materials which pose a hazard to health or safety or the value of the property.

Please contact me at (313) 661-3100 if the cost for processing this request exceeds \$100.00, or if you have any questions.

Sincerely,

C-E ENVIRONMENTAL, INC.

Nancy Gassel
Nancy Gassel
Environmental Engineer

NG:bw

C-E Environmental, Inc.
A subsidiary of
Combustion Engineering, Inc.

33493 Fourteen Mile Road
Suite 50
Farmington Hills, MI 48331

(313) 661-3100



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

OCT 12 1989

REPLY TO ATTENTION OF:

5HSM-12

Nancy GASEL
CE Environmental, Inc.
33493 Fourteen Mile Rd, Suite 50
FARMINGTON HILLS, MI 48331

Re: Freedom of Information Act
Request No. RIN *3041-89*

Dear *M.S. GASEL*:

This is in response to your Freedom of Information Act request referenced above, concerning database searches (by zip code, county or state) for the information listed below:

PONTIAC, OAKLAND COUNTY, MI 48053

- ☒ Enclosed is a copy of the CERCLIS printout for information listed above. CERCLIS is an automated inventory of all potential uncontrolled hazardous waste sites, based upon State investigation efforts and upon notifications received as provided by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or "Superfund"). These sites are in various stages of investigation.
- ☒ Enclosed is a printout of all permitted generators of hazardous waste and all treatment, storage or disposal facilities for the information listed above. These are regulated by the Resource Conservation and Recovery Act of 1976 (RCRA).
- ☐ We have reviewed our CERCLIS database and found no record of sites for the information listed above.
- ☐ We have reviewed our RCRA database and found no record of permitted generators, treatment, storage or disposal facilities for the information listed above.
- ☐ Sites listed as Site Impoundment Assessment (SIA) facilities on the CERCLIS printout have addresses which may or may not coincide with the actual location of the site. Further information may be obtained from the State at the address listed below.

- ☒ There is no charge since the total fee did not exceed the \$25.00 minimum.
- ☐ The charges for this request were _____. You will be charged in a cumulative billing as agreed upon with the FOIA officer for Region V.
- ☐ Enclosed with this response is a Bill for Collection in the amount of _____. This covers computer printout, system and programming fees for the enclosed reports. This bill cannot be waived in the event the material is returned to the U.S. Environmental Protection Agency. The charges were confirmed on _____.

While this letter responds to your request, additional specific information on any of these sites may be available in our files. If you wish to request additional information under FOIA; please address your written inquiry to:

Mr. Robert Hartian
Freedom of Information Officer (5PA-14)
U.S. Environmental Protection Agency-Region V
230 South Dearborn Street
Chicago, Illinois 60604

You may wish to contact the State environmental agency at the address below, for information they may have on file:

Mr. Delbert Rector, Director
Hazardous Waste Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

We hope you find this information helpful. If you have any questions about this letter, please contact Ms. B. Allison at 312/886-6163.

Sincerely yours,



John R. Kelley, Chief
Superfund Program Management Branch

cc: R. Hartian, OPA
FOIA File

*MICHIGAN RCRA SITES
10/23/1989

ID NUMBER	NAME	SITE LOCATION	CITY	ST	ZIPCODE
* MID0981194574	ASSOCIATED RADIOLOGISTS O F OAKLAND CTY	890 WOODWARD AVE	PONTIAC	MI	48053
* MID0981530738	AUTOMETRIC COLLISION INC	490 S TELEGRAPH	PONTIAC	MI	48053
* MID017312224	BLUE CLEANERS	1120 VOORHEIS RD	PONTIAC	MI	48053
* MID0980793756	CLINTON VALLEY CENTER	140 ELIZABETH LAKE RD	PONTIAC	MI	48053
* MID0981727493	CRESTVIEW CADILLAC - SUBA RU	675 S SAGINAW	PONTIAC	MI	48053
* MID080552533	CUSTOM UNIFORM	370 ORCHARD LAKE RD	PONTIAC	MI	48053
* MID0000718833	DETROIT EDISON CO BLOOMFI, ELD STATION	751 S WOODWARD	PONTIAC	MI	48053
* MID0000722545	DETROIT EDISON CO OAKLAND GROUP	761 S WOODWARD	PONTIAC	MI	48053
* MID147359111	FLEET CARRIER CORP	525 SOUTH BLVD E	PONTIAC	MI	48053
* MID0981120598	GMC CPC DEVELOPT CTR YANHA TEAM PROJECT	1250 BROWN RD	PONTIAC	MI	48053
* MID005355885	GMC CPC PONTIAC	ONE PONTIAC PLZ	PONTIAC	MI	48053
* MID005356902	GMC TRUCK & BUS GROUP	660 SOUTH BLVD E	PONTIAC	MI	48053
* MID080558815	GMC TRUCK AND BUS DIV POM TIAC WEST	275 FRANKLIN ST	PONTIAC	MI	48053
* MID076331289	GMC WHS & DIST DIV	1251 JOSLYN RD	PONTIAC	MI	48053
* MID109145801	GOLLING CHRYSLER PLYMOUTH	90 S TELEGRAPH	PONTIAC	MI	48053
* MID005538722	HAWKINS EQUIPMENT CO INC	747 ORCHARD LAKE RD	PONTIAC	MI	48053
* MID121517090	INDUSTRIAL VEHICLE SALES	351 S SAGINAW	PONTIAC	MI	48053
* MID082029530	JEROME ARNOLD CADILLAC	575 S SAGINAW	PONTIAC	MI	48053
* MID081534714	JEROME ARNOLD CADILLAC SU BARU INC	815 WOODWARD AVE	PONTIAC	MI	48053
* MID123103137	KICH BELL TEL CO	90 LAKE ST	PONTIAC	MI	48053
* MID155226713	MICROPORE INC	1075 GOLF DR	PONTIAC	MI	48053
* MID028023547	MITCHELL CLEANERS	2267 ORCHARD LK RD	PONTIAC	MI	48053
* MID992606999	PONTIAC ARMORY	233 N JOHNSON AVE	PONTIAC	MI	48053
* MID981951815	PPG INDUSTRIES INC GM COR P	900-B BALDWIN AVE	PONTIAC	MI	48053
* MID982627606	REFURBCO INC	2655 ORCHARD LAKE RD	PONTIAC	MI	48053
* MID0000722686	SAFETY KLEEN CORP 4-055-0 2	751 ORCHARD LAKE ROAD	PONTIAC	MI	48053
* MID982650822	SP SERVICES INC	491 E WILSON	PONTIAC	MI	48053
* MID067359240	ST JOSEPH MERCY HOSPITAL	900 WOODWARD AVE	PONTIAC	MI	48053
* MID017321259	WARDROBE CLEANERS	1038 BALDWIN	PONTIAC	MI	48053

CNT 101# 29

MICHIGAN CERCLIS SITES
09/30/1989

* ID NUMBER	NAME	SITE LOCATION	CITY	ST	ZIP CODE	COUNTY NAME
**						
* MID005355895	GMC PONTIAC MOTOR DIV	ONE PONTIAC PLZ	PONTIAC	MI	48053	OAKLAND
* MID005356902	GMC TRUCK & COACH DIV	PON 660 S BLVD E	PONTIAC	MI	48053	OAKLAND
	TIAC EAST					
CNT 101* 2						

APPENDIX C
TANK REMOVAL FIELD CHECKLIST

SUB INSPECTION
PONTIAC STORAGE

FEB-6-84

AA NA

1- CHECK CONTRACTOR INSTALLING
8" PIPE LINE

✓

2- CHECK DIRT GROUND KIM ETC
UNSTABLE HEALTH HAZAROUS MATERIALS

✓

3- CHECK FOR SHEETING SHORING
AND BLOCKING

✓

4- CHECK ON TRENCH

✓

5- CHECK FOR WATER SEEPAGE OR
LEAKAGE

✓

6- CHECK ON ALL ^{8"} PIPE LINE FITTINGS
INSTALLED FOR CRACKS

✓

M. A. R. R.
Report

FEB. 7. 80

ADNP

- 6

SUB INSPECTION

FEB-8-84

PONTIAL STORAGE

AP NP

1. CHECK 8" PIPE LINE 90 DEGREE ELBOW
FITTINGS ETC.

✓

2. CHECK PIPE CUTTING TOOL ETC

✓

3. CHECK ON ALL DEBRIS CLEAN-UP

✓

4. PONTIAL INSPECTOR INSTALLED

✓

WATER WATER

5. CHECK ON TESTING VALVE ON END
OF 8" PIPE

✓

6. CHECK WITH CONTRACTOR TO
PREPARE FOR TEST

✓

SUB: Inspection

FEB. 9-84

PONTIAC STORAGE

APND

1. CHECK ON THRU-STOP BLOCKING END
8" PIPE LINE.

✓

2. CHECK VALVES AND ALL FITTINGS
IN PIT.

✓

3. CHECK METER PIT FOR CRACKS

✓

4. CHECK CONTRACTORS SUCH AS APPARATUS

AND AUTOMOTIVE FOR OIL LEAKS ETC.

THAT MAY BE HAZARDOUS TO GOVERNMENT
EMPLOYEES.

✓

5. CHECK ALL NEW MATERIALS BEING
USED.

✓

6. CHECK 8" PIPE TO LINK UP WITH OLD
PIPE LINE.

✓

7. CHECK ALL FITTINGS FOR LOOSE BOLTS

✓

8. CHECK ALL WORK APPLICABLE STANDARDS

✓

SUR Inspection

FEB-10-84

PONTIAC STORAGE

1. CHECK TRUST BLOCKING ON PCL

8 PIPEING AND FITTINGS

2. FLUSH PIPEING LINES AND FITTINGS

3. WORK CHECK BY JOHN MARCH AND CERTIFIED

PONTIAC INSPECTOR

4. NO ENVIRONMENTAL HAZARDZ

5. TEST DATE FOR FEB. 13-84: 1000 HRS

6. ALL TESTING AND TREATMENTS -

ACCORDING TO PONTIAC HEALTH DEPT

7. TESTING OF SOIL AS PER STANDARDS

8. ROAD CLEARED AND RETURNED TO

NORMAL

9. PONTIAC INSPECTOR REQUESTED

TWO TARCORA INSPECTORS PRESENT

ACCORDANCE TO STANDARDS INSPECTIONS,

AND TESTINGS THROUGH VISUAL

EXAMINATION, AND LIQUID PENETRANT

AND PARTICLES TESTING TO WORKMAN-

SHIP, DEFECTS AND ETC, 10 AM

FEB. 13-84

APPENDIX D

U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY LETTER



DEPARTMENT OF THE ARMY 1LT Cocalis/dja/943-8881
US ARMY ENVIRONMENTAL HYGIENE AGENCY
REGIONAL DIVISION - WEST
FITZSIMONS ARMY MEDICAL CENTER
DENVER, COLORADO 80240

HSE-MW

18. August 1978

SURJECT: Industrial Hygiene Survey No. 66-0261-78, Pontiac Storage Facility, Pontiac, MI, 10-11 July 1978

Cdr, USA Materiel Development and Readiness Comd, ATTN: DRCSG, 5001
Eisenhower Avenue, Alexandria, VA 22333
Cdr, USA Health Services Comd, ATTN: HSPA-P, Fort Sam Houston, TX 78234

66-0261-78
COMPLETED
18 Aug 78

1. AUTHORITY.
- a. AR 40-5, Health and Environment, 25 September 1974.
- b. Letter, HSE-AT/WP, this Agency, 12 June 1978, subject: Revised Field Services, Fourth Quarter, FY 78.
2. REFERENCES. See Inclosure 1 for a listing of references.
3. PURPOSE. To determine the presence and extent of any health hazards resulting from exposures incident to industrial operations performed at the installation and to provide recommendations for eliminating or controlling those hazards found.
4. BACKGROUND.
- a. This survey constituted an evaluation of industrial operations as pertains to the field of industrial hygiene. This survey should not be construed as an Occupational Safety and Health Administration (OSHA) inspection; however, the criteria used for the basis of this assessment are equal to or more stringent than those contained in the OSHA Standards. General areas observed were primarily only those operations identified by installation personnel who were designated as installation contacts or who served as guides. Evaluations are based on observations of the survey personnel and on conversations with operating and supervisory personnel.
- b. Pontiac Storage Facility receives its industrial hygiene support from US Army Health Clinic (USAHC), Detroit Arsenal.



DEPARTMENT OF THE ARMY 1LT Cocalis/djs/943-8881
US ARMY ENVIRONMENTAL HYGIENE AGENCY
REGIONAL DIVISION - WEST
FITZSIMONS ARMY MEDICAL CENTER
DENVER, COLORADO 80240

HSE-MW

18 August 1978

SUBJECT: Industrial Hygiene Survey No. 66-0261-78, Pontiac Storage
Facility, Pontiac, MI, 10-11 July 1978

Cdr, USA Materiel Development and Readiness Comd, ATTN: DRCSG, 5001
Eisenhower Avenue, Alexandria, VA 22333
Cdr, USA Health Services Comd, ATTN: HSPA-P, Fort Sam Houston, TX 78234

66-0261-78
COMPLETED
18 Aug 78

1. AUTHORITY.

a. AR 40-5, Health and Environment, 25 September 1974.

b. Letter, HSE-AT/WP, this Agency, 12 June 1978, subject: Revised
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2. REFERENCES. See Inclosure 1 for a listing of references.

3. PURPOSE. To determine the presence and extent of any health hazards
resulting from exposures incident to industrial operations performed at the
installation and to provide recommendations for eliminating or controlling
those hazards found.

4. BACKGROUND.

a. This survey constituted an evaluation of industrial operations as
pertains to the field of industrial hygiene. This survey should not be
construed as an Occupational Safety and Health Administration (OSHA)
inspection; however, the criteria used for the basis of this assessment are
equal to or more stringent than those contained in the OSHA Standards.
General areas observed were primarily only those operations identified by
installation personnel who were designated as installation contacts or who
served as guides. Evaluations are based on observations of the survey
personnel and on conversations with operating and supervisory personnel.

b. Pontiac Storage Facility receives its industrial hygiene support
from US Army Health Clinic (USAHC), Detroit Arsenal.

18 AUG 1978

Attachment No. 1 30-100000



HSE-MW

18 August 1978

SUBJECT: Industrial Hygiene Survey No. 66-0261-78, Pontiac Storage Facility, Pontiac, MI, 10-11 July 1978

c. An exit briefing was conducted with Mr. Robert Shirock, Safety Director, TACOM.

d. This survey was conducted by 1LT Joseph C. Cocalis, this Division, on 10-11 July 1978.

5. FINDINGS AND RECOMMENDATIONS.

a. General. Industrial hygiene support for Pontiac Storage Facility is inadequate. Prior to this survey, the last time the facility was visited by the USAHC Detroit Arsenal industrial hygienist was on 13 January 1976 (Reference 8). The nature and frequency of several operations had changed considerably since then. To ensure compliance with the provisions of AR 40-5, TB MED 223, and Title 29, Code of Federal Regulations (CFR), Part 1910, the following recommendations are made:

(1) USAHC, Detroit Arsenal.

(a) Perform semi-annual industrial hygiene evaluations of the facility to include recommendations for the control of inadequacies (paragraph 4-2, AR 40-5).

(b) Update the inventory of industrial operations and toxic chemicals and keep it current (paragraph 4-2, AR 40-5). Included in this updated inventory should be personnel names, degree of exposure (where pertinent), recommended medical surveillance, frequency of examinations, date of last examination, and pertinent comments (such as recommended engineering controls, etc.).

(c) Enter Pontiac Storage facility personnel into a respiratory protective program which as a minimum meets criteria contained in TB MED 223 and 29 CFR 1910.134. Emphasis should be placed on the issuance of proper respirators and employee training in their use and limitations [29 CFR 1910.134(b)].

(d) Enter Pontiac Storage facility personnel into a hearing conservation program which as a minimum meets criteria contained in AR 40-5 and TB MED 251. Emphasis should be placed on identifying noise hazardous areas (paragraph 4-18, AR 40-5) and initiating an ongoing health education program (paragraph 4-18, AR 40-5).

(2) Pontiac Storage Facility.

HSE-MW

18 August 1978

SUBJECT: Industrial Hygiene Survey No. 66-0261-78, Pontiac Storage Facility, Pontiac, MI, 10-11 July 1978

(a) Consult with industrial hygienist located at USAHC, Detroit Arsenal, when industrial operations or processes change (paragraph 4-2, AR 40-5).

(b) Enforce the wearing of proper respiratory protection as recommended by the USAHC Industrial Hygienist [29 CFR 1910.134(a)].

(c) Enforce the wearing of hearing protection as recommended by the USAHC Industrial Hygienist (paragraph 4-18, AR 40-5).

b. Specific Operations.

(1) Pontiac Storage Facility.

(a) Finding. Paint and solvent spraying areas lacked ventilation. Ventilation meeting criteria specified in 29 CFR 1910.94, 29 CFR 1910.107, and National Fire Protection Association (NFPA) Standard No. 33-1969 is required for all spraying operations (except for the spraying of exteriors of buildings, fixed tanks, and when using small portable spraying apparatus not used repeatedly in the same location).

(b) Recommendation. Discontinue paint and solvent spraying operation until ventilation is provided (29 CFR 1910.94 and 29 CFR 1910.107). Refer to 29 CFR 1910.94, 29 CFR 1910.107, NFPA Standard No. 33-1969, and Inclosure 2, for Paint Booth Design Criteria.

(2) USAHC, Detroit Arsenal.

(a) Finding. Improper respiratory protection was being used during paint and solvent spraying operations (i.e., "surgical type masks" which are not approved for protection against organic vapors were being used during spraying operations).

(b) Recommendation. Evaluate paint and solvent spraying operations when active (paragraph 4-2, AR 40-5). As part of that evaluation, ensure that ventilation and respiratory protection meets criteria specified in the OSHA standards (29 CFR 1910) and USAEHA's Industrial Hygiene Evaluation Guide (Reference 7, Inclosure 1).

8. TECHNICAL ASSISTANCE. Informal technical advice and/or consultation may be obtained telephically from USAEHA Regional Division-West, AUTOVON 943-888). Requests for formal assistance should be submitted in writing

HSE-MW

18 August 1978

SUBJECT: Industrial Hygiene Survey No. 66-0261-78, Pontiac Storage
Facility, Pontiac, MI, 10-11 July 1978

through channels to Commander, USA Health Services Command, ATTN: HSPA-P,
Port Sam Houston, Texas 78234, in accordance with paragraph 1-5, AR 40-5.

FOR THE COMMANDER:



ROBERT G. GRODT, P.E.
LTC, MSC
Chief, Regional Division-West

2 Incl
as

CF:

HODA (DASG-FSP)

Supt, AHS (HSA-IHE)

Cdr, Detroit Arsenal (2 cy)

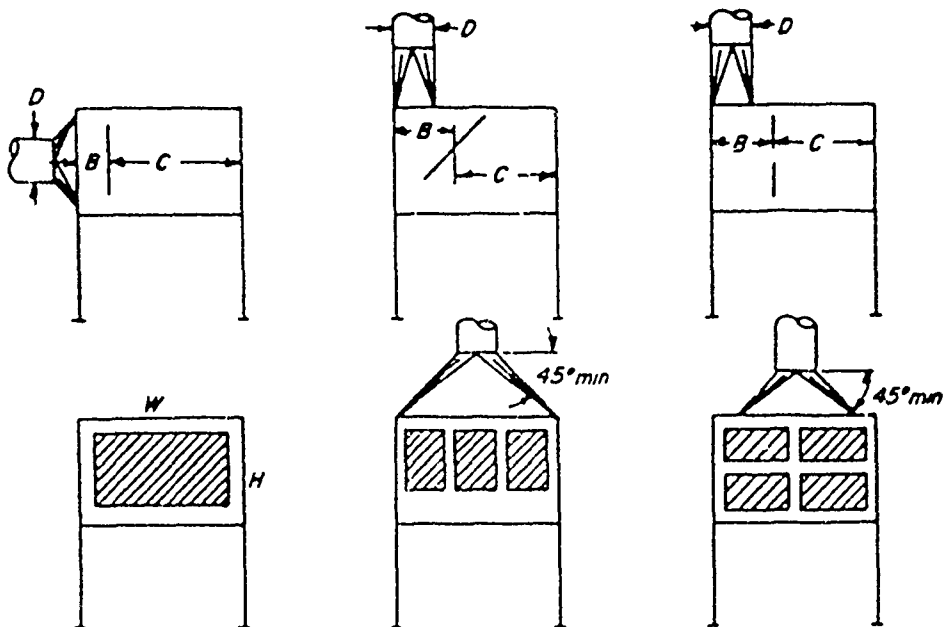
Dir, Pontiac Storage Facility (2 cy)

Cdr, MEDDAC, Ft Sheridan (3 cy)

Cdr, USAEHA (HSE-M) (2 cy)

REFERENCES

1. AR 40-5, Health and Environment, 25 September 1974.
2. TR MED 223, Respiratory Protective Devices, 4 April 1977.
3. TR MED 251, Noise and Conservation of Hearing, 7 March 1972.
4. Public Law 91-576, Occupational Safety and Health Act of 1970, 29 December 1970, 29 US Code (USC) 651 et seq.
5. Title 29, CFR, 1976 ed., Part 1910, Occupational Safety and Health Standards.
6. NFPA Standard No. 33-1969, Standard for Spray Finishing Using Flammable and Combustible Materials.
7. OSHA, Technical Guide (MED), Industrial Hygiene Evaluation Guide, October 1975.
8. Disposition Form, STASA-XH, subject: Temperature, Potable Water, and Sanitation Survey, Pontiac Storage Facility, Pontiac, MI, 26 January 1976.



1. Solid Baffle
 $B = 0.75D$
 Baffle area = $0.60WH$

2. Angular Baffle
 $B = D + 6"$
 Baffle area = $0.60WH$

3. Split Baffle or Filters
 $B = D + 6"$
 Baffles or filters = $0.75WH$
 Filter combustibility Class 2
 or better Consult NBFU or
 insurance underwriters.

Air spray paint design data

Any combination of branch ducts and baffles may be used.

W = work size - 12"

H = work size - 12"

$C = 0.75W$ or H , whichever is larger.

$Q = 200 \text{ cfm/sq ft (200WH)}$ - for face area up to 4 sq ft

= 150 cfm/sq ft - for face area over 4 sq ft

Entry loss = Baffles: 1.78 slot VP + 0.50 duct VP

= Filters: Dirty filter resistance + 0.50 duct VP

Duct velocity = 1000-3000 fpm

Reproduced from Industrial Ventilation with the permission of the American Conference of Governmental Industrial Hygienists.

SMALL PAINT BOOTH

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY
 UNITED STATES ARMY MEDICAL DEPARTMENT

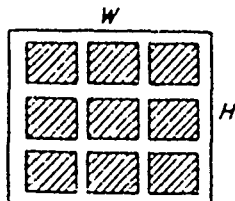
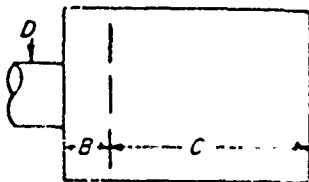
DATE 26 Jun 75

DRAWN TVB

APPROVED NHL

SCALE None

PLATE 1a



1 Split Baffle or Filters

$$B = 0.75 D$$

$$\text{Baffle or filter area} = 0.75 W H$$

Filter combustibility Class 2 or better.

Consult AIA or insurance underwriters

Air spray paint design data

Any combination of duct connections and baffles may be used. Large, deep booths do not require baffles. Consult manufacturers for water-curtain designs. Use explosion proof fixtures and non-sparking fan. Electrostatic spray booth requires automatic high-voltage disconnects for conveyor failure, fan failure or grounding.

Walk-in booth

$$W = \text{work size} + 6'$$

$$H = \text{work size} + 3' \text{ (minimum } = 7')$$

$$C = \text{work size} + 6'$$

$$Q = 100 \text{ cfm/sq ft booth cross section}$$

May be 75 cfm/sq ft for very large, deep, booth. Operator may require approved respirator.

$$\text{Entry loss} = \text{Baffles: } 1.78 \text{ slot VP} + 0.50 \text{ duct VP}$$

$$= \text{Filters: Dirty filter resistance} + 0.50 \text{ duct VP}$$

$$\text{Duct velocity} = 1000-2000 \text{ fpm}$$

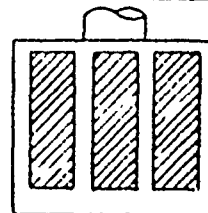
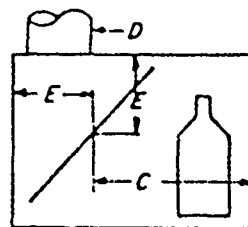
Operator outside booth

$$W = \text{work size} + 2'$$

$$H = \text{work size} + 2'$$

$$C = 0.75 \times \text{larger front dimension}$$

$$Q = 100-150 \text{ cfm/sq ft of open area, including conveyor openings.}$$



2 Angular Baffle

$$E = D + 6''$$

$$\text{Baffle area} = 0.40 W H$$

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LARGE PAINT BOOTH

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 26 Jun 75

DRAWN TVB

APPROVED NHL

SCALE None

PLATE 1b

AIRLESS SPRAY PAINT DESIGN DATA

Small Paint Booth

- Q = 125 cfm/sq ft (125WH) = for face area up to 4 sq ft
- = 100 cfm/sq ft - for face area over 4 sq ft

Large Paint Booth

- Q = 60 cfm/sq ft booth cross section, walk-in booth
- = 60-100 cfm/sq ft of total open area, operator outside of booth

NOTE: Baffle arrangements shown on plates 1a and 1b are for air distribution only. Filters and/or other air cleaning devices may be required to meet air pollution codes or local conditions.

For construction and safety requirements consult:
National Fire Protection Association (NFPA) Codes.

SPRAY PAINT BOOTHS

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

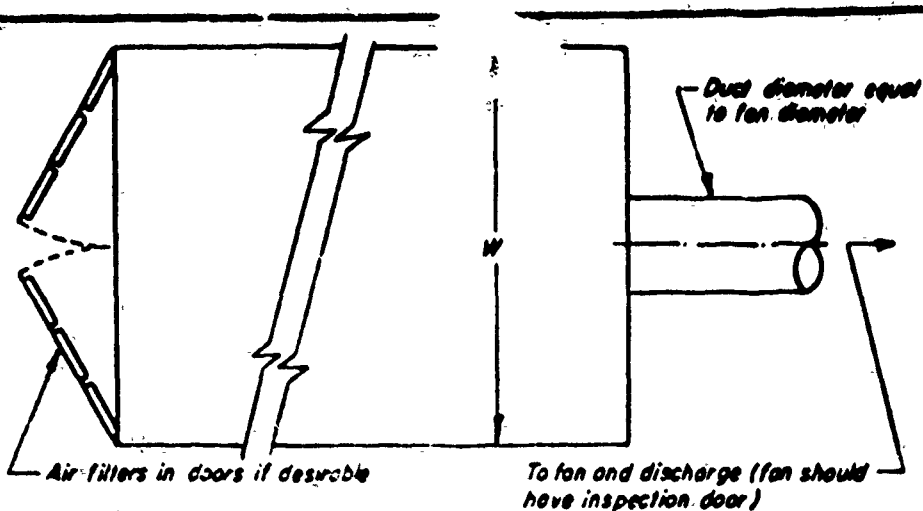
DATE: 20 JUN 75

DRAWN: TVB

APPROVED: NML

SCALE: NONE

PLATE: 1c



PLAN VIEW

$Q = 100$ cfm / sq ft of cross-section area

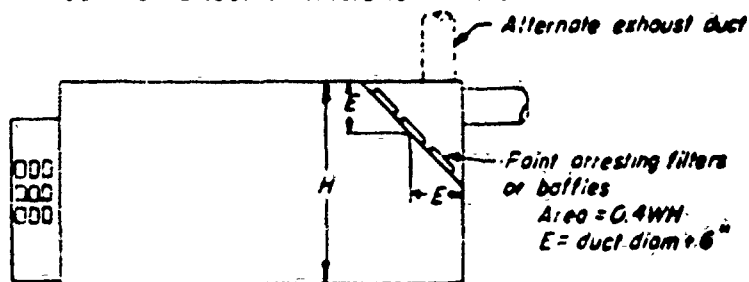
Entry loss = 0.50 VP plus resistance of each filter bank when dirty

Duct velocity = 1000 - 3000 fpm

Air filters to be sized for 275 cfm/sq ft of filter

Paint filters: combustibility Class 2 or better

size and number of filters for minimum area shown



ELEVATION

Typical filter installation

For construction and safety requirements consult NFPA

Airless spray painting

$Q = 60$ cfm / sq ft of cross-section area

Reproduced from Industrial Ventilation with permission of the American Conference of Governmental Industrial Hygienists.

AUTO SPRAY PAINT BOOTH

DATE 26 Jun 75

DRAWN TVB

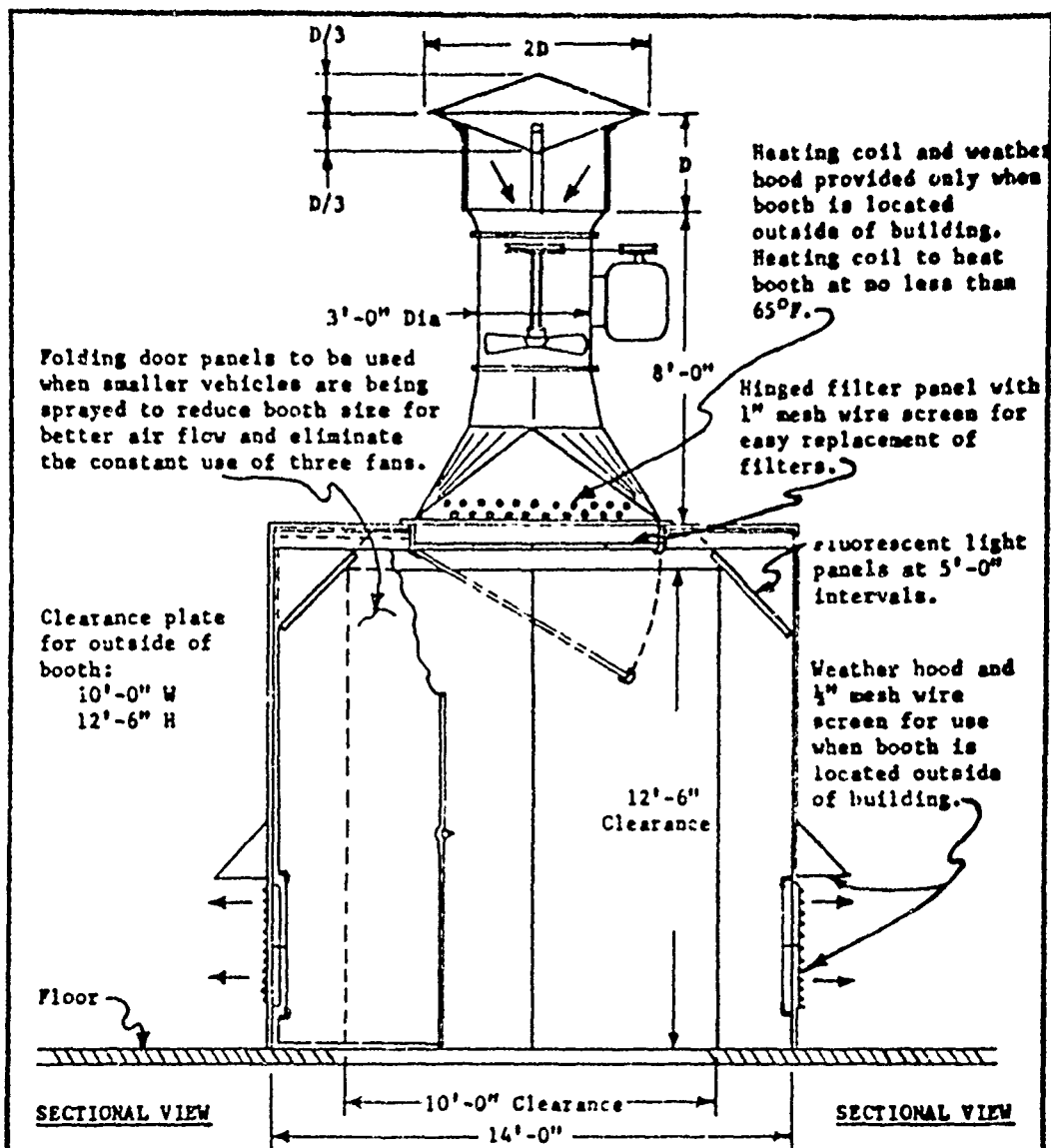
U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

APPROVED NHL

UNITED STATES ARMY MEDICAL DEPARTMENT

SCALE None

PLATE 1d



Sheet 1 of 4

PAINT SPRAY BOOTH FOR LARGE VEHICLES

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY
UNITED STATES ARMY MEDICAL DEPARTMENT

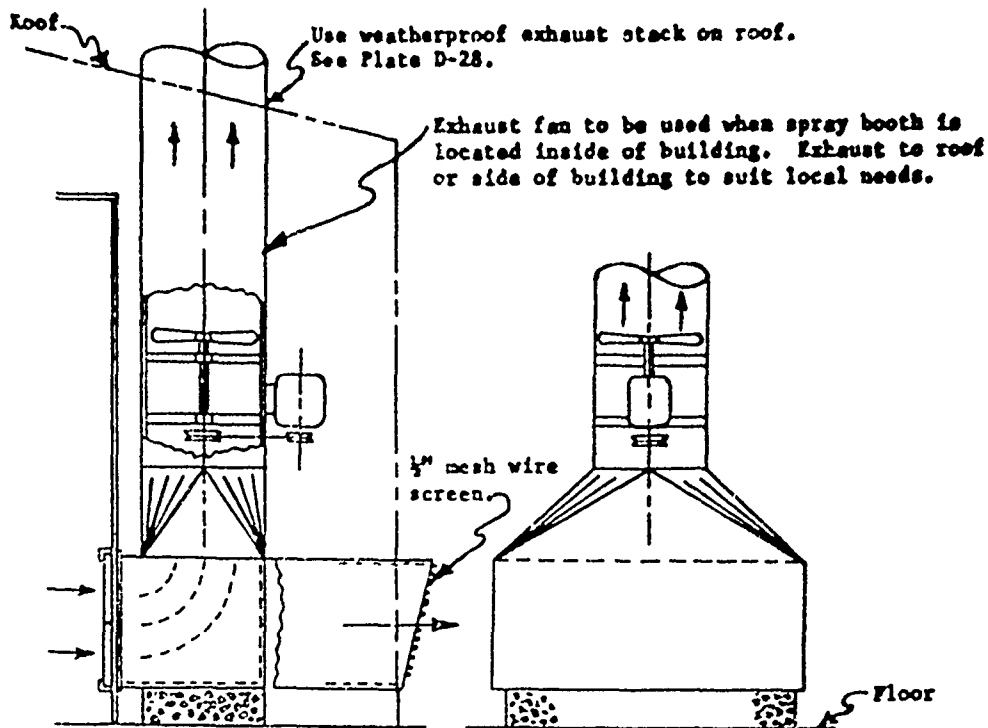
DATE 1 JUL 73

DRAWN INJL

APPROVED *C. F. B.*

SCALE NONE

PLATE D-74 a



EXHAUST DETAIL

NOTES:

1. Filters to be RP paint arrestors 20"x20"x2", 1000 cfm each. Research Products Corp. type 1031 or equal.
2. Required ceiling clearance for indoor use of spray booth is 24'-6".
3. Exhaust duct through side of building only to be used when distance is 10'-0" or less from the filters to the outside of the building.
4. No exhaust fan is required when duct is discharged through side of building.

Sheet 3 of 4

PAINT SPRAY BOOTH FOR LARGE VEHICLES

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY
UNITED STATES ARMY MEDICAL DEPARTMENT

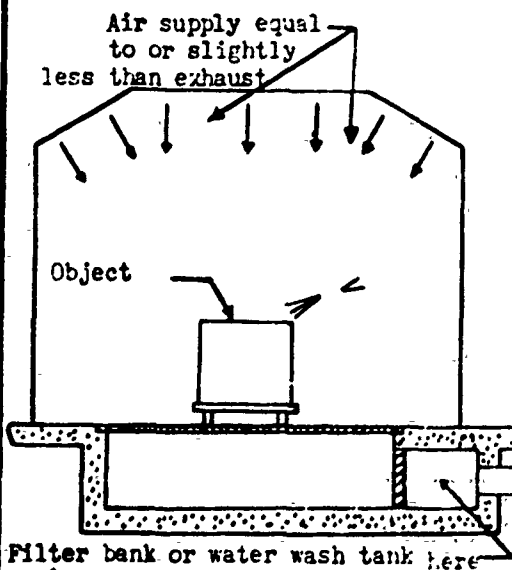
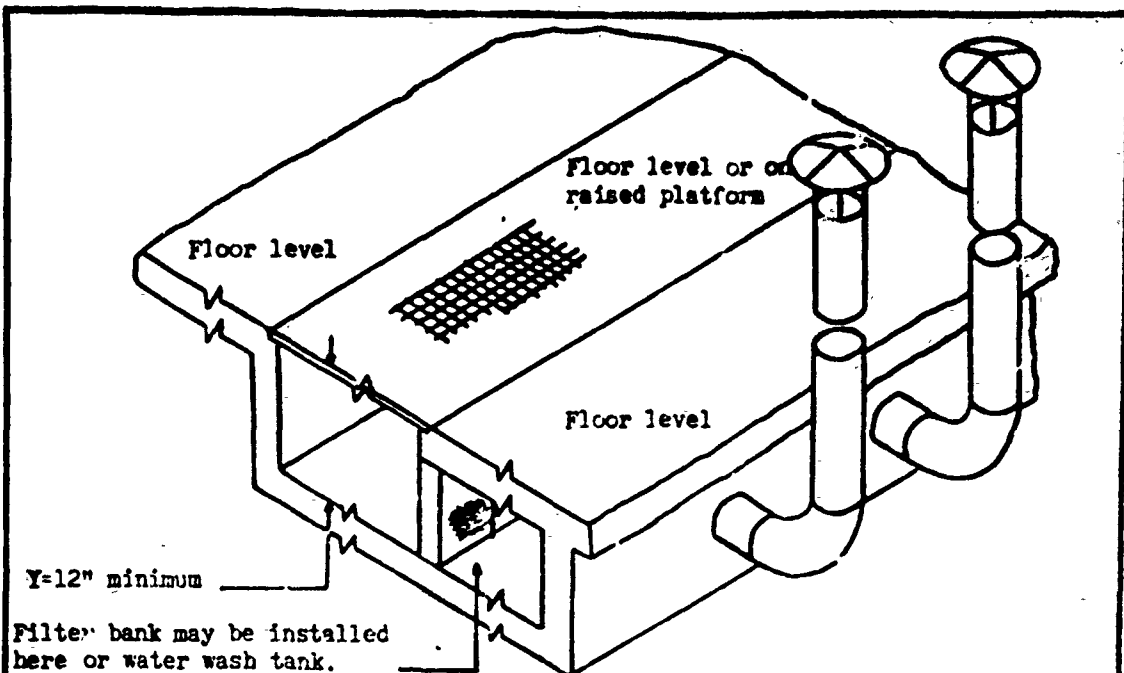
DATE 1 JUL 73

D. IWN DJL

APPROVED *63B*

SCALE NONE

PLATE D-44 c



- A. $Q(\text{CFM}) = 125 \times \text{grille area (sq ft)}$
- B. Duct velocity = 2000 FPM
- C. Entry loss = Calculate from individual losses.
- D. If L exceeds 8', multiple take-offs advisable.
- E. If W exceeds 6', take-offs on both sides necessary.
- F. Air cleaning equipment should be used to minimize neighborhood pollution. Either filter bank or mechanical collector suitable.
- G. If booth type enclosure used - see left.

$Q(\text{CFM}) = 100 \times \text{Grille area (sq ft)}$
All other design data same as above.

Drawing reproduced with permission of
ACGIH.

Sheet 4 of 4

DOWNDRAFT PAINT SPRAY VENTILATION

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 1 JUL 75

DRAWN. JSL

APPROVED. *EJB*

SCALE NONE

PLATE D-24d

DRF

S: 6 October 1978

HSPA-P (18 Aug 78) 1st Ind

SUBJECT: Industrial Hygiene Survey No. 66-0261-78, Pontiac Storage Facility, Pontiac, MI, 10-11 July 1978

DA, HQ, US Army Health Services Command, Ft S. Houston, TX 78234

23 AUG 1978

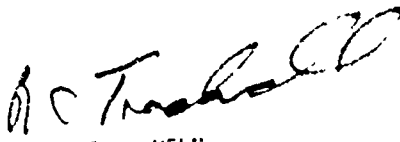
TO: Commander, USA MEDDAC, Ft Sheridan, IL 60947

1. Inclosed report from the US Army Environmental Hygiene Agency, Regional Division West, Fitzsimons Army Medical Center, contains recommendations in paragraph 5 for the improvement of the industrial hygiene program at Pontiac Storage Facility.
2. Request you inform this headquarters of action taken regarding the recommendations within your purview NLT 6 October 1978.

FOR THE COMMANDER:

2 Incl
nc

CF:
✓Cdr, USAEHA wo incl



H. E. TRAUBWELL
Maj, AGC
23 AUG

APPENDIX E

TELEPHONE/CONVERSATION MEMORANDUM

RECORDS SEARCH LOG SHEET

PROPERTY NAME: Pontiac Storage Facility

PROPERTY ADDRESS: South Blvd. between Oakdale & E Blvd.

OWNER'S NAME: _____

AGENCY SEARCHED: MSMR - Northville

AGENCY LOCATION: Northville, MI

DEPARTMENT SEARCHED: Air Quality

NAME OF CONTACT: Ermena Constantine

TITLE OF CONTACT: Secretary PHONE: 344-7470

SEARCH CONDUCTED BY: Nancy Gass-J

DATE OF SEARCH: 9/19/89

DESCRIBE INFORMATION SOUGHT DURING THE SEARCH AND THE INFORMATION FOUND:

All records - none found.

RECORDS SEARCH LOG SHEET

PROPERTY NAME: Pontiac Storage Facility
PROPERTY ADDRESS: South Blvd. between Opdyke & E Blvd.
OWNER'S NAME: _____

AGENCY SEARCHED: MDNR-Northville

AGENCY LOCATION: Northville, MI

DEPARTMENT SEARCHED: Waste Management Division

NAME OF CONTACT: Bernice Sanford

TITLE OF CONTACT: Secretary PHONE: 344-11670

SEARCH CONDUCTED BY: Nancy Gassl

DATE OF SEARCH: 9/19/89

DESCRIBE INFORMATION SOUGHT DURING THE SEARCH AND THE INFORMATION FOUND:

All records - none found.

RECORDS SEARCH LOG SHEET

PROPERTY NAME: Pontiac Storage Facility
PROPERTY ADDRESS: South Blvd. between Opdyke & E. Blvd.
OWNER'S NAME: _____
AGENCY SEARCHED: MDNR - Northville
AGENCY LOCATION: Northville, MI
DEPARTMENT SEARCHED: Environmental Response Division
NAME OF CONTACT: Harry Jones
TITLE OF CONTACT: Student Assistant PHONE: 314-9440
SEARCH CONDUCTED BY: Nancy Gassel
DATE OF SEARCH: 9/19/89

DESCRIBE INFORMATION SOUGHT DURING THE SEARCH AND THE INFORMATION FOUND:

All records - none found.
Not a 307 site.

RECORDS SEARCH LOG SHEET

PROPERTY NAME: Pontiac Storage Facility

PROPERTY ADDRESS: South Blvd. between Dodge & E. Blvd.

OWNER'S NAME: _____

AGENCY SEARCHED: MDNR-Northville

AGENCY LOCATION: Northville, MI

DEPARTMENT SEARCHED: Surface Water Quality

NAME OF CONTACT: Anthony Igwe

TITLE OF CONTACT: General Engineer PHONE: 344-2460

SEARCH CONDUCTED BY: Nancy Gancel

DATE OF SEARCH: 2/19/89

DESCRIBE INFORMATION SOUGHT DURING THE SEARCH AND THE INFORMATION FOUND:

All records - none found.

C-E Environmental, Inc.

33493 Fourteen Mile Road
Suite 50
Farmington Hills, Michigan 48331
Tel. (313) 661-3100
Fax: (313) 661-5457

TELEPHONE MEMORANDUM

PROJECT NO. 6088-00 DATE: 9-20-89

CLIENT: USATHAMA

PROJECT DESCRIPTION: Pontiac Storage Facility

BETWEEN: City of Pontiac Assessing Department 857-7619

AND: Nancy Gassel (C-EE)

SUBJECT: SIDWELL/TAX I.D.#

DISCUSSION: The SIDWELL/TAX I.D.# for the site is 1434426001.

DISTRIBUTION:

TELEPHONE MEMORANDUM

PROJECT NO. 6088-00 DATE: 9-20-89

CLIENT: USATHAMA

PROJECT DESCRIPTION: Pontiac Storage Facility

BETWEEN: Oakland County Register of Deeds

AND: Nancy Gassel (C-EE)

SUBJECT: Lot #, Legal Description, Former Owners

DISCUSSION: Register of Deeds Department said to get SIDEWELL/TAX I.D. #
from City of Pontiac before making inquiries to their department.

- Legal Description \Rightarrow will send-out today (858-0609)

- Tract Index \Rightarrow Lot 9 of assessor plat 141 of Pontiac (858-0595)
 \Rightarrow Must go to office to find out former owners
(Courthouse Bldg. @ 1200 telegraph, 6th Floor
- city corner to Summit Place Mall)

DISTRIBUTION:

RECORDS SEARCH LOG SHEET

PROPERTY NAME: Pontiac Storage Facility
PROPERTY ADDRESS: 871 S Blvd., E., Pontiac, MI
OWNER'S NAME: _____

AGENCY SEARCHED: Oakland County Register of Deeds
AGENCY LOCATION: Pontiac, MI
DEPARTMENT SEARCHED: Tract Index

NAME OF CONTACT: Larry Mitchell
TITLE OF CONTACT: Clerk PHONE: 858-0595

SEARCH CONDUCTED BY: Nancy Gass
DATE OF SEARCH: 9/21/59

DESCRIBE INFORMATION SOUGHT DURING THE SEARCH AND THE INFORMATION FOUND:

Sought information on former owners.

Attached sheet has information found.

Need to get acreage description from City of Pontiac in order to get more information from Register of Deeds (then can get information from "Acreage Book").

Lot 9 pt of comm
at intersec of S li
of sec 34, w. EROW
li of Grnd Trnk RR
11; th N 01° 28' W 33 ft to
pt; etc

A/P #141

Pontiac
3427-311-312
Easement
9-15-55
10-25-55

General Motors Corp
to U.S.A.
(Signed by Corps of E)

Lot 9 pt of comm
at intersec of S li
of sec 34, w. EROW
li of Grnd Trnk RR; th
N 01° 28' W 654.49 ft; etc
A/P #141 Pontiac

Transferred → QC - Quick Claim
Title 9-15-55
10-25-55

GMC to U.S.A.

Lot 9
A/P #141
Pontiac

2013-574
WD - w/aff
10-21-46
11-8-46

Fisher & Co. to GMC
Easement
to r/w

RD490

CITY OF PONTIAC
LAND FILE DISPLAY SCREEN

09/21/89
09:27:52

CVT CODE: 64
SIDWELL NO: 14 34 426 001

OWNER(S)
UNITED STATE WAR DEPT

PROPERTY ADDRESS
UNKNOWN

MAILING ADDRESS
GENERAL SERVICES ADMIN
WASHINGTON DC 20006

SCHOOL DIST. CODE: 210
USE CODE: ME ZONE CODE: ME
BANK CODE: NEIGHBORHOOD CODE:

REC DISPLAYED AS REQUESTED - "PA1" KEY FOR MORE DESC LINES
RD490 CITY OF PONTIAC

LAND FILE DISPLAY SCREEN

09/21/89
09:28:00

CVT CODE: 64
SIDWELL NO: 14 34 426 001

OWNER(S)
UNITED STATE WAR DEPT

PROPERTY ADDRESS
UNKNOWN

PROPERTY DESCRIPTION:
01 T3N, R10E, SEC 34
02 ASSESSOR'S PLAT NO. 141
03 PT OF LOT 9 DESC AS
04 BEG AT A PT LOC N
05 01-28-00 W 343 FT
06 FROM THE INTER OF
07 THE S LI OF SEC 34 &
08 THE ELY R/W LI OF
09 G.T. RR TH CONT N
10 01-28-00 W 654.49 FT
11 TO PC TH ALG CUR TO
12 R WHOSE RAD IS
13 694.65 FT A DIST OF
14 929.92 FT TO PT OF
15 TANG TH N 75-14-02 E
16 492.02 FT TH S
17 01-28-00 E 1436.57
18 FT TH S 88-07-50 W

PROPERTY DESCRIPTION:
19 1013.72 FT TO POB
20 CONT. 29.38 AC MORL

RECORDS SEARCH LOG SHEET

PROPERTY NAME: Pontiac Storage Facility
PROPERTY ADDRESS: 871 S. Blvd., E., Pontiac, MI
OWNER'S NAME: _____
AGENCY SEARCHED: Oakland County Planning Division
AGENCY LOCATION: Pontiac, MI
DEPARTMENT SEARCHED: Map Sales
NAME OF CONTACT: Mary Jo Leuthenizer
TITLE OF CONTACT: Map Sales Person PHONE: 858-0723
SEARCH CONDUCTED BY: Nancy Gassel
DATE OF SEARCH: 9/21/89

DESCRIBE INFORMATION SOUGHT DURING THE SEARCH AND THE INFORMATION FOUND:

Sought air photos, property lines, and lot numbers.

Found all of the above and obtained aerial photos from 1970 and 1980, and a composite photo from 1985.

Mary Jo suggested talking to John Squires (645-4325) of Detroit Edison to get air photos from 1950's. → Leaves at 4:00pm

RECORDS SEARCH LOG SHEET

PROPERTY NAME: Pontiac Storage Facility
PROPERTY ADDRESS: 871 S. Blvd., E., Pontiac, MI
OWNER'S NAME: U.S. Army Tank Command

AGENCY SEARCHED: Oakland County Health Division
AGENCY LOCATION: Pontiac, MI
DEPARTMENT SEARCHED: Environmental Health Services
NAME OF CONTACT: Gary Frick
TITLE OF CONTACT: Supervisor PHONE: 858-1322

SEARCH CONDUCTED BY: Nancy Gao-1
DATE OF SEARCH: 9/21/89

DESCRIBE INFORMATION SOUGHT DURING THE SEARCH AND THE INFORMATION FOUND:

Looked for inspection reports & well logs.
Already had copy of only inspection report done.
Obtained copy of attached well log.



ACT 294 PA 1965

4

A circular stamp with a clock face border. The text inside the circle reads "Oakland County" at the top, "NOV 20 1978" in the center, and "Department of Health" at the bottom. The clock face has numbers 1 through 12. The stamp is slightly tilted.

TELEPHONE MEMORANDUM

PROJECT NO. 6088-00 DATE 9-22-89

CLIENT: USATHAMA

PROJECT DESCRIPTION: Pontiac Storage Facility

BETWEEN: Doug Wilson (MDOT - SE MI) 569-3993

AND: Nancy Gassel (C-EE)

SUBJECT: Bore Hole Logs

DISCUSSION: Mr. Wilson doesn't have any bore hole logs, but he suggested that I call Pat O'Rourke in the Lansing office. He also said to ask for any logs from the following locations: ⁽⁵¹⁷⁻³²²⁻¹⁶⁾

- 1) I-75 cross-road with South Blvd. ⇒ Control Section 63174, Structure S19
- 2) Business Loop I-75 x-road with Opdyke ⇒ Control Section 63111, Structure S01
- 3) M-59 x-road with Opdyke ⇒ Control Section 63131, Structure S01

DISTRIBUTION:

C-E Environmental, Inc.

33493 Fourteen Mile Road
Suite 50
Farmington Hills, Michigan 48331
Tel. (313) 661-3100
Fax: (313) 661-5457

TELEPHONE MEMORANDUM

PROJECT NO. 6088-00 DATE: 9-25-89
CLIENT: USATHAMA
PROJECT DESCRIPTION: Pontiac Storage Facility
BETWEEN: Terry Harmon (State Fire Marshal's Office) 517-322-1924
AND: Nancy Gassel (C-EE)
SUBJECT: USTs

DISCUSSION: Ms. Harmon checked the State Fire Marshal records
and found no UST records for 871 South Boulevard (Pontiac
Storage Facility)

DISTRIBUTION:

C-E Environmental, Inc.

33493 Fourteen Mile Road
Suite 50
Farmington Hills, Michigan 48331
Tel. (313) 661-3100
Fax: (313) 661-5457

TELEPHONE MEMORANDUM

PROJECT NO. 6088-00 DATE: 9-25-89

CLIENT: USATHAMA

PROJECT DESCRIPTION: Pontiac Storage Facility

BETWEEN: Sandy Meyers (Clerk Typist) - Pontiac Fire Marshal's Office 857-766

AND: Nancy Gassel (C-EE)

SUBJECT: USTs

DISCUSSION: Ms Meyers checked the Pontiac Fire Marshal
files and found no UST records for 871 South Boulevard
(Pontiac Storage Facility).

DISTRIBUTION:

RECORDS SEARCH LOG SHEET

PROPERTY NAME: Pontiac Storage Facility

PROPERTY ADDRESS: 871 S. Blvd., E., Pontiac, MI

OWNER'S NAME: _____

AGENCY SEARCHED: Detroit Edison

AGENCY LOCATION: 30200 Telegraph Road, Suite 207

DEPARTMENT SEARCHED: Cartography

NAME OF CONTACT: Frank Sobie

TITLE OF CONTACT: Cartographer/Photogrammetist PHONE: 645-4325

SEARCH CONDUCTED BY: Nancy Gas-

DATE OF SEARCH: 9-26-89

DE INFORMATION SOUGHT DURING THE SEARCH AND THE INFORMATION FOUND:

" - aerial photography from 1950's.
Picked-up photo on 7-29-89

RECORDS SEARCH LOG SHEET

PROPERTY NAME: Pontiac Storage Facility
 PROPERTY ADDRESS: 871 S. Blvd., Pontiac, MI 48053
 OWNER'S NAME: U.S. Army Tank Command
 AGENCY SEARCHED: MDNR
 AGENCY LOCATION: Northville District
 DEPARTMENT SEARCHED: Environmental Response
 NAME OF CONTACT: Jean Stewart & Oladipo Oyinsan (Dipo)
 TITLE OF CONTACT: Secretary & Dist. Supv. PHONE: 344-9440
 SEARCH CONDUCTED BY: Nancy Gassel
 DATE OF SEARCH: 11-29-89

DESCRIBE INFORMATION SOUGHT DURING THE SEARCH AND THE INFORMATION FOUND:

Sought information on Pontiac GMC Truck and Bus
 barrel landfill 307 site with PCBs and cyanide.

No records were found, but Dipo suggested calling
 Drew Gable of the Lansing MDNR Environment Response
 (Act 307 Section) @ 517-573-4813. Dipo also
 indicated that MDNR Waste Management would
 not have any information on an Act 307 site.

RECORDS SEARCH LOG SHEET

PROPERTY NAME: Pontiac Storage Facility
PROPERTY ADDRESS: 871 S. Blvd., Pontiac, MI 48053
OWNER'S NAME: U.S. Army Tank Command

AGENCY SEARCHED: MDNR
AGENCY LOCATION: Northville District
DEPARTMENT SEARCHED: Surface Water Quality
NAME OF CONTACT: Maggie Fields
TITLE OF CONTACT: Record Keeper PHONE: 344-9440

SEARCH CONDUCTED BY: Nancy Gassel
DATE OF SEARCH: 11-29-89

DESCRIBE INFORMATION SOUGHT DURING THE SEARCH AND THE INFORMATION FOUND:

Sought information on Pontiac ^{GMC} Truck & Bus Barrel
Landfill 307 site w/ PCBs & cyanide.

No records found.

C-E Environmental, Inc.

33493 Fourteen Mile Road
Suite 50
Farmington Hills, Michigan 48331
Tel. (313) 661-3100
Fax: (313) 661-5457

TELEPHONE MEMORANDUM

PROJECT NO. 6088-00 DATE: 12-4-89
CLIENT: USATHAMA
PROJECT DESCRIPTION: Pontiac Storage Facility
BETWEEN: Lloyd Clapper (Detroit Edison) 237-7781
AND: Nancy Gassel (C-E)
SUBJECT: Transformers

DISCUSSION: Mr. Clapper indicated that the transformers at the Pontiac Storage Facility are customer owned. Detroit Edison's records show that these transformers are mineral oil filled, but don't show whether the transformers contain any PCBs. Mr. Clapper said that he suspects that the transformers could possibly be PCB contaminated.

DISTRIBUTION:

C-E Environmental, Inc.

33493 Fourteen Mile Road
Suite 50
Farmington Hills, Michigan 48331
Tel. (313) 661-3100
Fax: (313) 661-5457

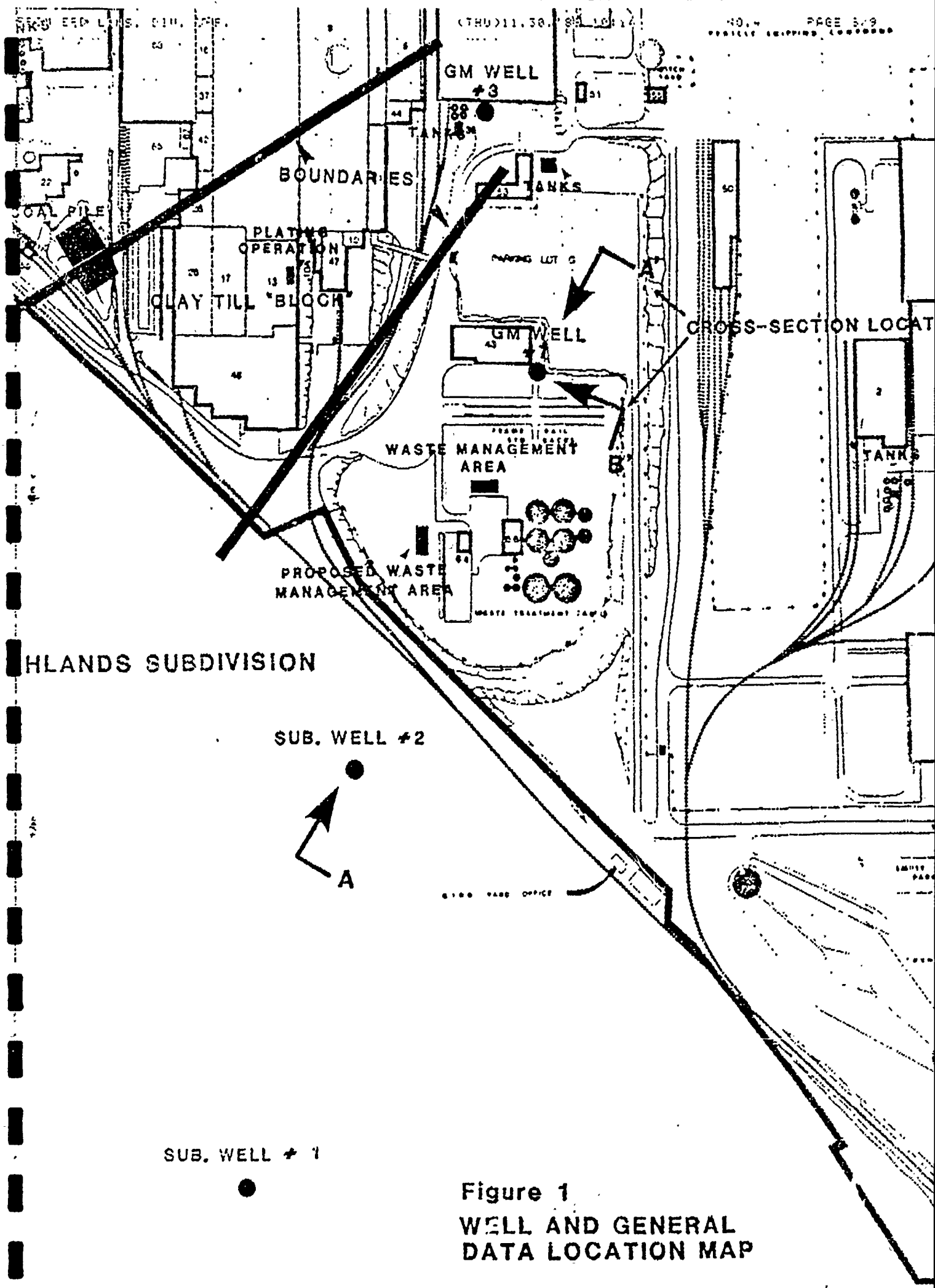
TELEPHONE MEMORANDUM

PROJECT NO. 6088-00 DATE: 2-15-90
CLIENT: U.S. Army Tank Command - USATHAMA
PROJECT DESCRIPTION: Pontiac Storage Facility
BETWEEN: Rich Lahner (State Health Dept. - Community Water Supply) ⁵¹⁷⁻³³⁵⁻⁸³²¹
AND: Nancy Gasse (C-EE) ^{→ Division of Water Supply}
SUBJECT: Water Well Logs

DISCUSSION: Any GM drinking water wells would be part of the
non-community water supply program (Call Julie Parsons at
517-335-9327). The South Bloomfield Highland Subdivision
has two drinking water wells to serve the subdivision
(see attachments). No other public water supply wells in
Section 3, T2N, R10E.

2-16-90 ⇒ Rich faxed a copy of one of the
subdivision wells and some related data. This was the
only well log he had for Section 3, T2N, R10E (The
log for the other subdivision well was missing). Rich couldn't
find any well logs for Section 34, T3N, R10E.

DISTRIBUTION:



C-E Environmental, Inc.

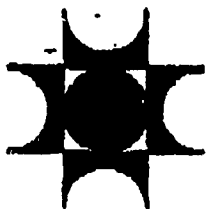
331 1/2 Fourteen Mile Road
Suite 50
Farmington Hills, Michigan 48331
Tel. (313) 661-3100
Fax: (313) 661-5457

TELEPHONE MEMORANDUM

PROJECT NO. 6088-00 DATE: 2-20-90
CLIENT: U.S. Army Tank Command - USATHAMA
PROJECT DESCRIPTION: Pontiac Storage Facility
BETWEEN: Julie Parsons (State Health Dept. - Non-Community Water Supply Program) 517-335-9323
AND: Nancy Gassel (C-EE)
SUBJECT: Water Well Logs

DISCUSSION: Julie didn't find any well logs for Section 3,
T2N, R10E or Section 34, T3N, R10E. Julie said that
she may have well logs for these sections that are
inputted into the computer wrong. Julie suggested calling
the Geological Survey (517-334-6921) to request all
the well logs on file for these sections (there will
probably be a charge).

DISTRIBUTION:



MICHIGAN
DEPARTMENT
OF PUBLIC
HEALTH



DELIVERING TO:

NAME: Nancy Cassel

SECTION: _____

DIVISION: _____

DEPARTMENT: _____

TELEPHONE: _____

FAX MACHINE: 313/661-5457DATE: 2-16-90

TIME: _____

NUMBER OF PAGES, INCLUDING COVER SHEET: 5

FROM:

NAME: Richard LernerSECTION: Region IDIVISION: Water SupplyBUREAU: ENVIRONMENTAL AND OCCUPATIONAL HEALTHTELEPHONE: 517-335-8321FAX MACHINE: 517-335-8298

MESSAGE:

5. Bloomfield
Highlandville

MICHIGAN DEPARTMENT OF HEALTH

DIVISION OF ENGINEERING

Lansing 4, Michigan

MUNICIPAL WELL DATA SHEET

This data sheet must be filled out and returned to the Michigan Department of Health after each test well or permanent well has been completed. It is the responsibility of the governmental agency for whom the well is being drilled to file the data asked for below. This obligation may be met by a representative of the governmental agency, such as the consulting engineer, the superintendent of water or the clerk. The data will be obtained from the well log. This data is required to fully satisfy the conditions on which the construction permit for the well was originally issued by the Michigan Department of Health.

GENERAL

Test Well No. 2 Final Well No. 3 City PONTIAC Subdivision SOUTH BLOOMFIELD HIGHLANDS County OAKLAND
IMPROVEMENT ASSOCIATION
 (Measurements referenced to centerline of street) Bloomfield Highlands

Diameter 8" in. Was water from test well analyzed for Iron, Chlorides and Hardness?
 Depth 227 ft. Casing to 222 ft. Date completed 6-9-51 Test well number 1
 Well Driller DUNBAR DRILLING & SUPPLY CO. Consulting Engineer DALE DUNBAR

LOG

Formation	From	To	Total	Static Water Level
Clay, sand & stones (soft)	0	35'		
Sand, Clay & stones	35'	63'		
Hard Pan	63'	140'		
Sand Gravel & Clay	140'	153'	606' PM	63'
Clay, Sand & stones	153'	165'		
Sand, Clay & stones	165'	180'		
Clay (brown hard)	180'	197'		
Sand (dirty)	197'	204'		
Sand & Gravel	204'	227'		
Clay & Sand	227'		540 GPM @ 110'	
			250 GPM @ 20'	
If necessary, use other side.				

FOR PERMANENT WELL ONLY

Screen: Length and slot size no. 10' - 8" NO 60 Slot
 Test pumped at 540 gpm for 30 min with drawdown of 40 ft.
 Pump installed: (If delay of over 60 days is expected until pump is installed, submit well data and log at once and pump data following installation).

Manufacturer DEMING Type SD 54 TURBINE
 Capacity 325 gpm at rated head of 239 ft., Motor H.P. 2.5
 Length of: column 120' ft., bowls _____ ft., tail pipe 10' ft., No. of stages 1

Submitted by South Bloomfield HighlandsTitle Improvement - Approved

CHEMICAL ANALYSIS OF WATER

Bureau of Laboratory and Epidemiological Services
Michigan Department of Public Health
3500 North Logan, P.O. Box 30035
Lansing, MI 48909
Telephone (517) 335-8184

Abbreviations: GT = Greater than given value
MCL = State regulated maximum contaminant limit

REPORT TO:

Water Supply Division-MDPH
3500 N Logan, Box 30035
Lansing, MI 48909

LAB NO.: 8810-01971 Page: 1
PROGRAM CODE: 14

Date received: 10/13/88
Date reported: 11/01/88

Examiners in Charge:
T.J. Williams, Sec. Chief
F.H. [unclear], Asst. Sec. Chief

SAMPLE SOURCE INFORMATION:

System Owner: SOUTH BLOOMFIELD HIGHLANDS
Street Address: HARBOROUGH WELL
City or Twp: BLOOMFIELD
County: OAKLA

Location/Source: 500
Collected by: EMMER
Date Collected: 10/21/88

Test Name	Test Result	Standard Health MCL	Detection Test Limit
BICARBONATE AS CaCO ₃	293mg/L	-	-
CARBONATE AS CaCO ₃	Not Detected	-	-
CHLORIDE (AUTOMATED)	17mg/L	-	1mg/L
FLUORIDE (AUTOMATED)	0.6mg/L	2.4mg/l	-
NITRATE AS N (AUTOMATED)	Not Detected	10.0mg/l	0.2mg/L
SULFATE	42mg/L	-	-
SILICA AS SiO ₂	18.5mg/L	-	-
CALCIUM	87.9mg/L	-	-
MAGNESIUM	33.1mg/L	-	-
POTASSIUM	2.3mg/L	-	-
SODIUM	13mg/L	-	-
CONDUCTIVITY (MANUAL)	660umhos	-	-
PH (HYDROGEN ION)	8.0	-	-
HARDNESS AS CaCO ₃ (TITRATED)	359mg/L	-	-

MAJOR ION BALANCE FOR SUBSTANCES TESTED:

Pos. Charge: 7.74meq/l Neg. Charge: 7.25meq/l Dev. from mean: 3.32%

Recovered solids with acceptable ion balance: 390mg/l

Dissolved solids estimated from conductivity: 297- 462mg/l

Hardness test result: 359mg/l Calculated from Ca and Mg: 356mg/l

Calcium carbonate saturation index @ 20 C: 0.85

CHEMICAL ANALYSIS OF WATER

Bureau of Laboratory and Epidemiological Services
Michigan Department of Public Health
3500 North Logan, P.O. Box 30035
Lansing, MI 48909
Telephone (517) 335-8184

Abbreviations: GT = Greater than given value
MCL = State regulated maximum contaminant limit

REPORT TO:

Water Supply Division-MDPH
3500 N Logan, Box 30035
Lansing, MI 48909

LAB NO.: RB10-01960 Page: 1
PROGRAM CODE: 14

Date received: 12/13/88
Date reported: 11/01/88

Examiner in Charge:

J. J. Williams, B.S. C. H. E.
F. H. R. J. Williams, B.S. C. H. E.

SAMPLE SOURCE INFORMATION:

System Owner: SOUTH BLOOMFIELD HIGHLANDS
Street Address: HARBAROUGH WELL
City or Twp: BLOOMFIELD
County: OAKLA

Location: HARBOR, WOOD
Location: 100
Collected by: LEHNER
Date Collected: 10/11/88

Test Name	Test Result	Standard Health MCL	Conversion Test Limit
IRON (RECOVERABLE)	1.2mg/L	-	-
MANGANESE, RECOVERABLE	0.16mg/L	-	-

CHEMICAL ANALYSIS OF WATER

Bureau of Laboratory and Epidemiological Services
Michigan Department of Public Health
3500 North Logan, P.O. Box 30035
Lansing, MI 48909
Telephone (517) 335-8184

Abbreviations: GT = Greater than given value
MCL = State regulated maximum contaminant limit

REPORT TO:

Water Supply Division-MDPH
3500 N Logan, Box 30035
Lansing, MI 48909

LAB NO.: RR10-01959 Page: 1
PROGRAM CODE: 14

Date received: 10/13/88
Date reported: 11/01/88

Examiner in Charge: J. E. HARRIS, JR.
J. E. HARRIS, JR., Director, Michigan Department of Public Health

SAMPLE SOURCE INFORMATION:

System Owner: SOUTH BLOOMFIELD HIGHLANDS
Street Address: 176 BARRINGTON
City or Twp: BLOOMFIELD HILLS
County: OAKLA

Location/Address: 176 BARRINGTON
Collected by: LEHNER
Date Collected: 10/21/88

Test Name	Test Result	Standard Health MCL	Health Limit
ARSENIC, TOTAL	Not Detected	0.050mg/l	0.050mg/L
BARIUM, TOTAL DISSOLVED	0.07mg/L	1.0mg/l	1.0mg/L
CADMIUM, TOTAL	Not Detected	0.010mg/l	0.005mg/L
CHROMIUM, TOTAL	Not Detected	0.050mg/l	0.030mg/L
COPPER (RECOVERABLE)	Not Detected	-	1.0mg/L
IRON (RECOVERABLE)	0.2mg/L	-	3.0mg/L
LEAD, TOTAL	Not Detected	0.050mg/l	0.050mg/L
MANGANESE, RECOVERABLE	Not Detected	-	0.05mg/L
MERCURY, TOTAL	Not Detected	0.002mg/l	0.003mg/L
SELENIUM, TOTAL	Not Detected	0.010mg/l	0.005mg/L
SILVER, TOTAL	Not Detected	0.050mg/l	0.001mg/L
ZINC (RECOVERABLE)	Not Detected	-	0.05mg/L

NOV 4 '88 3